PENNSYLVANIA HIGHWAYS

Today and Tomorrow

REPORT OF THE HIGHWAY PLANNING COMMISSION

COMMONWEALTH OF PENNSYLVANIA

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PENNSYLVANIA HIGHWAYS

Today and Tomorrow

REPORT OF THE
HIGHWAY PLANNING COMMISSION
TO THE GOVERNOR AND GENERAL ASSEMBLY
OF THE COMMONWEALTH OF PENNSYLVANIA

Harrisburg
November 1, 1950

-10

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William J. Cox
Chief Engineer

Richard E. O'Daniel
Research Director

John L. Herber
Asst. Chief Engineer

*Judge Rupp was unable to participate in the work of the Commission after June 1, 1950, because of prolonged illness.

COMMONWEALTH OF PENNSYLVANIA
HIGHWAY PLANNING COMMISSION
ROOM 542, STATE CAPITOL
HARRISBURG

HON. JAMES S. BERGER, CHAIRMAN
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WELLES A. GRAY, SECRETARY

November 1, 1950

Hon. James H. Duff, Governor
Commonwealth of Pennsylvania
State Capitol
Harrisburg, Pennsylvania

Dear Governor Duff:

On behalf of the members of the Highway Planning Commission, I have the honor to submit the attached report which has been prepared by the Commission in accordance with the provisions of Act 537 of 1949.

This report outlines proposals for road classification, develops a long-range plan for improvement of state and local roads throughout the State, and submits recommendations for changes in the present system of fiscal and administrative relationships between the State and its political subdivisions.

Although the recommended improvement program is an extensive one, including many expensive projects in urban as well as rural areas, we find that on the basis of our revenue estimates, these objectives can be accomplished without further increasing state taxes upon highway users.

Special mention should be made of the State Department of Highways which cooperated most generously not only in furnishing information and materials to the Commission but in making available, for an extended period of time, the services of a number of experienced engineers on its staff. Without this assistance, our engineering field inventory, which in many respects was unique, could not have been completed within the required time.

The Members of the Commission desire to express their commendation of the work of Welles A. Gray, Secretary; William J. Cox, Chief Engineer; Richard E. O'Daniel, Research Director; and John L. Herber, Engineer; and the work of all other members of the Commission's Staff, technical and clerical, for their deep interest and tireless efforts in the accomplishment of this Report.

Sincerely yours,

James S. Berger

Chairman

ACKNOWLEDGEMENTS

The Commission expresses its warmest thanks to the various organizations - governmental and private - as well as the many individual citizens who furnished helpful information and suggestions. The plans of highway improvement made available for study by Commission engineers and the proposals submitted at Commission hearings were of material help in the development of the program. Special thanks are due those agencies listed below.

Pennsylvania Department of Highways; Budget Bureau; State Tax Equalization Board; Pennsylvania Department of Revenue; Pennsylvania Turnpike Commission; State Highway and Bridge Authority; Bureau of Statistics, Pennsylvania Department of Internal Affairs; Bureau of Municipal Affairs, Pennsylvania Department of Internal Affairs; Pennsylvania Department of Commerce; Pennsylvania Public Utility Commission; United States Bureau of Public Roads.

League of Cities of the Third Class of Pennsylvania; Pennsylvania State Association of County Commissioners; Home Rule Association; Pennsylvania State Association of Boroughs; Pennsylvania State Association of Township Supervisors; Erie County Association of Township Supervisors; Pennsylvania State Association of Township Commissioners.

Allegheny Conference on Community Development; Chamber of Commerce of Pittsburgh; Pittsburgh Regional Planning Association; Greater Philadelphia-South Jersey Council and various of its divisions; Pennsylvania State Chamber of Commerce; Scranton Chamber of Commerce; Greater Berwick Highway Committee.

City of Meadville; City of Erie; Erie Chamber of Commerce; Greater New Castle Association; Oil City Chamber of Commerce; Carlisle Chamber of Commerce; Oil City; Harrisburg Chamber of Commerce; City of Lancaster; Lancaster Chamber of Commerce; North Schuylkill Chamber of Commerce; Tamaqua Chamber of Commerce; Carlisle Planning Commission; North Boroughs Planning Commission (Allegheny County).

Beaver Falls Board of Trade; Johnstown Chamber of Commerce; Donora Chamber of Commerce; City of Philadelphia; Citizens Council on City Planning (Philadelphia); East Montgomery Chamber of Commerce; Norristown Chamber of Commerce; Allegheny County Planning Commission; North Side Chamber of Commerce (Pittsburgh); City Planning Commission (Pittsburgh); Allegheny Transit and Traffic Commission; Borough of Sewickley; Borough of Edgeworth.

Pennsylvania State Grange; Pennsylvania Farm Bureau Federation; Pennsylvania State School Directors' Association; Pennsylvania Society of Professional Engineers; Associated Railroads of Pennsylvania; Conservation Council of Pennsylvania; Pennsylvania Roadside Council; Pennsylvania Rural Letter Carriers Association; Wyoming Valley Women's Club, and Garden Club; Property Owners Protective Association of Luzerne County; Scenic Area Improvement Committee of Pennsylvania.

Keystone Automobile Club; Pennsylvania Bus Association; Pennsylvania Motor Federation; Pennsylvania Motor Truck Association; Western Pennsylvania Safety Council; Wyoming Valley Motor Club; Lycoming County Automobile Club; Erie County Motor Club; Waynesboro Motor Club; Pittsburgh Motor Club; Wilkinsburg Automobile Club.

Associated Petroleum Industries of Pennsylvania; Pennsylvania Hotels Association; Pennsylvania Realtors Association; Pennsylvania Retailers' Association; Outdoor Advertising Association of Pennsylvania; Philadelphia Automobile Trade Association; Philadelphia Trade Association; Merchants Bureau of Williamsport; Williamsport Community Trade Association; Greater Berwick Highway Committee.

It has not been possible to name everyone who helped in the preparation of this report, but the Commission wishes to thank all others who assisted it in its work by offering testimony at the hearings and in many other ways.

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INTRODUCTION

A Time for Action

Ever since the days when Pennsylvania was the crossroads of the Thirteen Colonies, it has maintained its reputation as a center of highway progress.

Pennsylvanians built the first major hard-surfaced road in America, linking Lancaster with Philadelphia in 1794. Pennsylvanians invented the Conestoga wagon - the famous "prairie schooner" so important in the settlement of the West. By 1818 a continuous hard-surfaced road connected the relatively distant cities of Philadelphia and Pittsburgh. Twentieth Century Pennsylvanians have earned a name for themselves in the history of road building by constructing the world's first mountain super highway - The Pennsylvania Turnpike.

But today, Pennsylvania faces serious highway problems brought about by war, depression, and complex administrative and financial difficulties. The ever-increasing use of our road system - which heightens the situation - shows no signs of abatement. Indeed, these problems will increase as traffic continues to grow.

Besides this, our roads are wearing out. This simple fact looms large in plans for the State's highway future.

To help deal with this crisis, the General Assembly in 1949 established a Highway Planning Commission. It directed the Commission "to develop a long-range highway program for the Commonwealth and to make report thereon." The Commission was appointed by Governor James H. Duff and began its work in September, 1949.

A professional staff of highway engineers and technicians in public administration and finance was retained by the Commission. They gathered facts to throw light upon the difficult problems faced by the State. Recommendations are based upon these facts, upon testimony presented by individuals and highway-user groups at public hearings and upon the best judgment of the Commissioners themselves.

This is the report of the Commission's findings and recommendations. It offers a program which the citizens of Pennsylvania can afford and which is designed to provide adequate highways for the Commonwealth's promising future. It tells what improvements are necessary now, what will be needed by 1962, what these improvements will cost and how they can be paid for.

The Commission believes that this 12-year program will serve the State both in peace and in war. It submits those proposals with the hope that Pennsylvania's elected officials will put them into effect for the benefit of all citizens and thereby maintain Pennsylvania's reputation as a leader in highway progress.

SUMMARY OF FINDINGS AND RECOMMENDATIONS

This report describes the current condition of Pennsylvania's road network. It is the result of the first physical inventory of all major roads in the history of the Commonwealth, of public hearings in five major cities, and of intensive studies of highway administration and finance.

In addition, it presents a program for correcting the deficiencies of our road system and for meeting the continually growing traffic demands of a prospering State.

This program calls for no additional taxes.

Through a plan of "limited reconstruction" of roads which need only resurfacing or other moderate improvements, the Commission's program will cost the citizens of Pennsylvania roughly a billion dollars less than the cost of complete reconstruction of all defective road sections.

This is a long-range plan for both the State roads and the 60 percent of total mileage owned by local governments - units which the Commission hopes will be strengthened by its recommendations of ways in which they can become more effective administrators of local roads.

The Commission found that more than half of all the State's major road mileage will require improvement within the next 12 years.

It found that Pennsylvania's 10 million people already are traveling 27 billion miles a year and probably will increase their travel 34 percent in the next 12 years.

It found that there are 29 motor vehicles on our roads today for every six in 1920 and that motor truck and trailer traffic has grown 120 percent since 1929.

It found that Pennsylvania roads link 170,000 farms with their markets and community centers. It learned that rural letter carriers travel 70,000 miles daily to serve two million citizens, and that our roads provide for a $600 million annual tourist business.

Its survey showed that the State's main Trunklines, which constitute only eight percent of the total road mileage, carry 40 percent of the traffic.

It investigated problems of traffic congestion in crowded industrial cities and found that one-third of all Pennsylvania traffic moves over city streets, which have received a much smaller percentage of highway expenditures.

Quite surprisingly, it learned that there has been only a two percent net increase in the total mileage of Pennsylvania highways during the past 36 years. During this period in which the number of vehicles using our roads increased 16 times, smooth all-weather surfaces, more and wider lanes and straighter roads have replaced thousands of miles of old type roads.

It found the 2,630 units of government responsible for road administration facing the problem of maintaining adequate highway facilities despite steadily mounting construction costs which doubled in an eight-year period.

The following recommendations are offered by the Commission to meet the challenge of our highway problems and to provide for a better road system for the next 12 years.

ROAD CLASSIFICATION

Roads should be classified into four systems, Trunkline, Intercommunity, Community Service and Local. The Secretary of Highways should establish these classifications in cooperation with the other units of government.

IMPROVEMENT PROGRAM

A 12-year program of road and bridge reconstruction costing $1,725,936,000 was developed by means of a road inventory. It consists of proposals for limited reconstruction, additional lane construction and complete reconstruction depending on the condition of the roads. This program should be undertaken by the State and other units of government having jurisdiction over highways. Present right-of-way width restrictions need to be liberalized in order to build adequate four-lane highways, especially where provision should be made for future expansion. Also, in order to establish priority of improvement, Local Roads should be further classified into two groups: Local Service Roads and Property Access Roads.

FINANCIAL SUMMARY OF THE PROPOSED 12-YEAR PROGRAM

The revenue estimates in this summary, as elsewhere in the report, are based upon the continuance of State taxes at present rates and a continuance of local revenues at the current level.

State

Estimated Motor License Fund revenue		$2,486,603,000
Estimated expenditures		
General expenses	$ 247,608,000	
State aids	210,000,000	
Highway improvements	1,470,953,000	
Other	550,700,000	
Total		$2,479,261,000
Balance		$ + 7,342,000

Local

Estimated revenue		
Local sources	$ 527,100,000	
State aid	210,000,000	
Total		$ 737,100,000
Estimated Expenditures		
Highway improvement	$ 254,983,000	
Other highway expenses	469,424,000	
Total		$ 724,407,000
Balance		$ +12,693,000

TRUCK SIZES AND WEIGHTS

Stricter enforcement of laws pertaining to truck weights, sizes, overall widths and length of load is needed. Penalties for violations of these laws should be stiffened. Consideration should be given to amending the present State laws to conform more nearly with standards of the American Association of State Highway Officials, particularly with respect to trucks equipped with tandem rear axles.

ROAD OWNERSHIP

With certain exceptions, all Trunkline, Intercommunity, and Community Service mileage should eventually be transferred to the State, and all Local Roads on the State Systems should eventually be returned to local ownership.

Local Roads transferred to the political subdivisions should be brought up to suitable standards before they are given up by the State.

SUPERVISION OF STATE GRANTS

The Department of Highways should make regular maintenance surveys (at least once a year) of any roads or bridges which have been built or improved with State money as well as those Local Roads and bridges which may be subsequently transferred from State to local ownership; and it should publish a report indicating whether or not all these roads are being properly maintained.

Whenever any unit fails to appoint qualified personnel to manage its roads (in accordance with the recommended change in the local practices), or whenever it fails to build or maintain local roads in accordance with standards acceptable to the Secretary of Highways, then all highway grants should be withheld until such conditions have been corrected.

The Department of Highways should inspect all local roads at least once every five years to determine whether or not such roads are passable and thus eligible for State grants.

All the political subdivisions should be required to submit uniform reports in such detail and in such a manner as may be required by the Department of Highways to make certain that State grants are being spent for the purposes outlined by law. Uniform limitations should apply with regard to the purposes for which money should be spent.

HIGHWAY WORK UNIT

The legislature should empower townships and boroughs to join in voluntary Highway Work Units and to undertake whatever contractual arrangements are necessary to make these organizations effective.

Any State-aid funds set aside for highway construction should be made available only to those highway organizations that can meet the proposed minimum requirements of Highway Work Units.

For all administrative purposes and for the rendering of reports, each Highway Work Unit should be considered as one unit.

LOCAL HIGHWAY MANAGEMENT PRACTICES

All local road mileage should be administered as a unit and either one local official, or several local officials acting as a single body, should be responsible for all roads.

Any person appointed as an administrative or managing head of any local highway organization whether a foreman, supervisor, superintendent or engineer should be required to have technical training or practical experience.

STATE-LOCAL PLANNING

The State should continue and expand its policy of cooperation by working out its ideas with local officials, civic planning groups, chambers of commerce and other citizen groups interested in long-range highway planning.

The State should also lay out its general program five years in advance and keep local officials and other groups advised of such plans as promptly as possible, so that local road planning may be coordinated with State proposals. Also officials in all local units should keep up-to-date plans of future road development for their own communities which can be fitted in with the program of the Department of Highways.

STATE HIGHWAY PLANNING

The Highway Planning Section of the Department of Highways should be expanded and strengthened to whatever extent may be necessary for the execution of the 12-year program.

TOLL PROJECTS

All State toll projects and extensions of State toll projects should continue to be subject to legislative approval. Only when current revenues are inadequate and the need for a large project is critical should the State consider toll financing, either in whole or in part, as a method of expediting important highway improvements.

Experience with the Turnpike has shown that tolls can be successfully used as a method of highway financing, provided there is sufficient traffic volume.

However, a precise limitation should be placed upon every toll project so that the revenue from one project cannot be used to finance other projects, thus extending indefinitely the period of toll charges.

In no instance should construction of a toll road deprive the traveling public of suitable free roads designed to serve the same destination or the same area.

STATE HIGHWAY AND BRIDGE AUTHORITY

This Commission agrees with the generally accepted theory that, except under very unusual circumstances, highway programs should be kept on a pay-as-you-go basis. Since adequate revenue from present taxes is estimated to be available to the State to finance its part of the 12-year program, the Commission recommends that no further effort be made to expand the scope of this authority and that its powers and responsibilities be limited to the size of its present operations.

STATE-AID FORMULAS

State highway grants to cities, boroughs and townships should be allocated on the basis of 50 percent for their relative shares of population and 50 percent for their relative shares of Local Road mileage. County highway grants should be distributed on the basis of their relative shares of the square feet of floor area in all county bridges.

COUNTY FINANCE

An arrangement should be made to repay the county highway debt through the State Highway and Bridge Authority, with the understanding that at the end of the 12-year program, the State's responsibility to liquidate any county highway debt will end. The State's responsibility to the counties for highway debt should also be defined and limited.

The power of the counties to apportion State highway grants to other subdivisions should be repealed.

STATE AND LOCAL HIGHWAY FINANCE

State grants to the boroughs, cities and townships should be increased to $15,000,000 per year or $180,000,000 for 12 years. Counties should be granted $2,500,000 per year or $30,000,000 for 12 years for highway purposes only.

When the State surrenders Local Road mileage to the second-class townships which cannot be exchanged for an equal mileage of Community Service Roads, then the State should give a direct mileage subsidy which is the equivalent of the savings involved. This grant should be in addition to any others.

Twenty percent of all of the State grants for highway purposes should be earmarked as construction aids, to be made available only if the local unit matches each dollar of this fund with one dollar of local revenue and can qualify as a Highway Work Unit. State funds earmarked for construction should first be spent on the Local Service Roads until they are up to established standards and then on the Property Access Roads. When all Local Roads in a unit are improved to established standards, the Secretary of Highways should authorize it to spend its grant on maintenance.

No subsidies should be extended to units which have no Local Roads and bridges. Local mileage of second-class townships should be eligible for only one form of subsidy and if it is receiving a direct mileage grant from mileage transfers it should not be included in the population and mileage formula.

The Liquid Fuels Tax Fund should be abolished and the one-half cent of the gasoline tax now set aside for the counties be added to the Motor License Fund.

The Department of Highways should assume responsibility for the administration of all State highway grants, including payments to the counties.

All reference to State aid being rendered as a means of relieving local taxation should be eliminated from present legislation.

I

PENNSYLVANIA'S HIGHWAYS TODAY

Administrative Responsibility

The Commonwealth of Pennsylvania has approximately 100,000 miles of roads. Responsibility for these roads is distributed among 2,630 governmental units. Table I-1 shows the present administrative control of all highway mileage in the State.

Prior to the establishment of the State Highway System in 1911, Pennsylvania roads were managed almost entirely by the townships. The State built some roads during this period under special acts of the legislature. However, the usual practice of the State was to construct roads by special legislative authority and to turn these roads back to the townships, who then were responsible for maintaining them.

STATE HIGHWAYS

The Sproul Act of 1911 created a State High-

Table I-1

HIGHWAY ADMINISTRATION

January 1, 1950

(Percentage totals do not add because of rounding)

		Number of Miles	*Percent of Total Mileage*	*Number of Units*	*Average Miles per Unit*
State					
State Highway System	12,860				
State Rural System	25,226				
Urban extensions					
State Highway System	1,749				
State Rural System	1,105				
Subtotal		40,940	41.0	1	40,940
Counties		763	.8	66[a]	12[b]
Cities		5,706	5.7	50[a]	116
Boroughs and towns		5,732	5.7	940	6
First-class townships		1,703	1.7	60	28
Second-class townships		44,941	45.0	1,513	30
Total		99,785	100.0	2,630	

[a] Philadelphia is included with cities rather than with counties.

[b] Only thirteen counties have road mileage and five of these (Allegheny, Lackawanna, Luzerne, Montgomery, Westmoreland) have 98 percent of all county mileage.

SOURCE: Data from Department of Highways. In all cases data are those nearest January 1, 1950.

way System of nearly 9,000 miles which, by 1931, had increased to approximately 13,500 miles. To this, in 1931, the Pinchot road program added a State Rural System of approximately 20,000 miles, mainly farm-to-market roads. The addition of this network more than doubled the mileage of the State roads and gave the State a two-part highway system: the State Highway System and the State Rural System.

Since 1931 legislative road bills have increased the State highway mileage to nearly 41,000 miles, which consists of the two systems referred to above, plus "urban extensions" of these roads through boroughs and cities (breakdown shown in Table I-1).

STATE
MILEAGE
PA. 40,940
10 STATE
TOTAL 35,929

STATE ADMINISTERED
HIGHWAYS in PENNSYLVANIA
and 10 NEIGHBORING STATES

This State mileage is equal to the combined highway mileage of the State Governments of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Delaware and Maryland, with enough left over to make a road from Philadelphia to Great Falls, Montana, thence to Calgary, Alberta, and going beyond Anchorage, Alaska.

LOCAL ROADS

County roads. County road mileage was negligible prior to 1911. The counties maintained some bridges and constructed some roads, but in most cases the roads were turned over to the townships soon after they were built.

The counties have never had jurisdiction over a large amount of road mileage, although during the early 1920's they played a leading part in the construction of high-type road surfaces. Since then their road mileage has constantly decreased and at the present time they control less than 1,000 miles of highways, more than half of which are in Allegheny County.

Second-class township roads. Second-class townships control 45 percent of the road mileage of the State, even though their total mileage has been decreasing. Most of their roads are now of the local-service and property-access types which carry a relatively small amount of traffic.

Other local roads and streets. The miles of cities, boroughs and first-class townships have been gradually increasing as a result of the trend toward urbanization. But even today urban communities control only about 13 percent of the total mileage in the State, although their systems carry a much greater percentage of the total traffic of the State. It is in these localities that much of the extreme traffic congestion now exists.

ADMINISTRATIVE COMPLEXITIES

With six different kinds of governmental agencies and 2,630 units responsible for Pennsylvania's highways, road management has become a complicated problem. The mileage shown in Table I-1 is not distributed among the several classes according to any particular pattern. Moreover, within each class no logical distribution is apparent.

The character of the roads changes from group to group and from unit to unit. For example, second-class township roads are mostly rural with many miles showing little or no improvement. However, some of them carry large volumes of through traffic and are of statewide importance. The State systems consist very largely of high-type and intermediate-type roads with bituminous or concrete surface, carrying heavy traffic. Some State roads, however, are purely of the local-service type, used by very few vehicles. In between are the other governmental units which have varying amounts of both improved and unimproved mileage and varying service characteristics.

Even so, the roads of the State must be considered as an integrated transportation network for which the State and its political sub-divisions are jointly responsible. The way in which these agencies do their job separately and together determines whether or not the State has good roads.

Finance

Highway expenditures do not bear any direct relationship to ownership of mileage. In 1948 (the latest year for which complete data are available) the various administrative groups in the State spent amounts varying from $152,565,341 to $3,620,483. Table I-2 indicates the amount spent by each group.

Obviously the local road mileage of the political subdivisions is not an accurate index of their financial problem. For example, the counties which have the lowest percentage of mileage have a great many bridges to maintain which, in large part, explains their expenditure of $5,718,335 as compared to the first-class townships' $3,620,483. The most striking contrast is that of the second-class townships and the State where, with approximately the same mileage, the State spent over eleven times that spent by the townships.

One of the principal reasons for this lack of uniformity in expenditures is the uneven flow of traffic over the individual systems. As shown in Chart I-1 expenditures and travel are more closely related than are mileage and expenditures.

As indicated in later discussion, there are other reasons which justify highway expenditures, particularly on the less heavily traveled roads, such as the need to provide mail service, school bus routes and general access to property for individual use.

PROBLEM OF INCREASING COSTS

While the varying volumes of travel and the

Table I-2

RELATIONSHIP BETWEEN MILEAGE AND EXPENDITURES

PENNSYLVANIA HIGHWAY SYSTEM

(Percentage totals do not add because of rounding)

	Percentage of Total Road Mileage	*1948 Highway Expenditures*	*Percent of Expenditures*
State	41.0	$152,565,341[a]	72.0
Counties	.8	5,718,335[b]	2.7
Cities	5.7	23,853,133	11.2
Boroughs and towns	5.7	12,688,600[c]	6.0
First-class townships	1.7	3,620,483	1.7
Second-class townships	45.0	13,754,778	6.4
Total	100.0	$212,200,670	100.0

[a] State Fiscal Year 1948-49.

[b] Omits county highway debt service and Philadelphia County whose highway expenditures are included in Philadelphia City.

[c] Borough expenditures based on sample.

SOURCES: Department of Highways.
State and Local Financial Reports, Department of Internal Affairs.

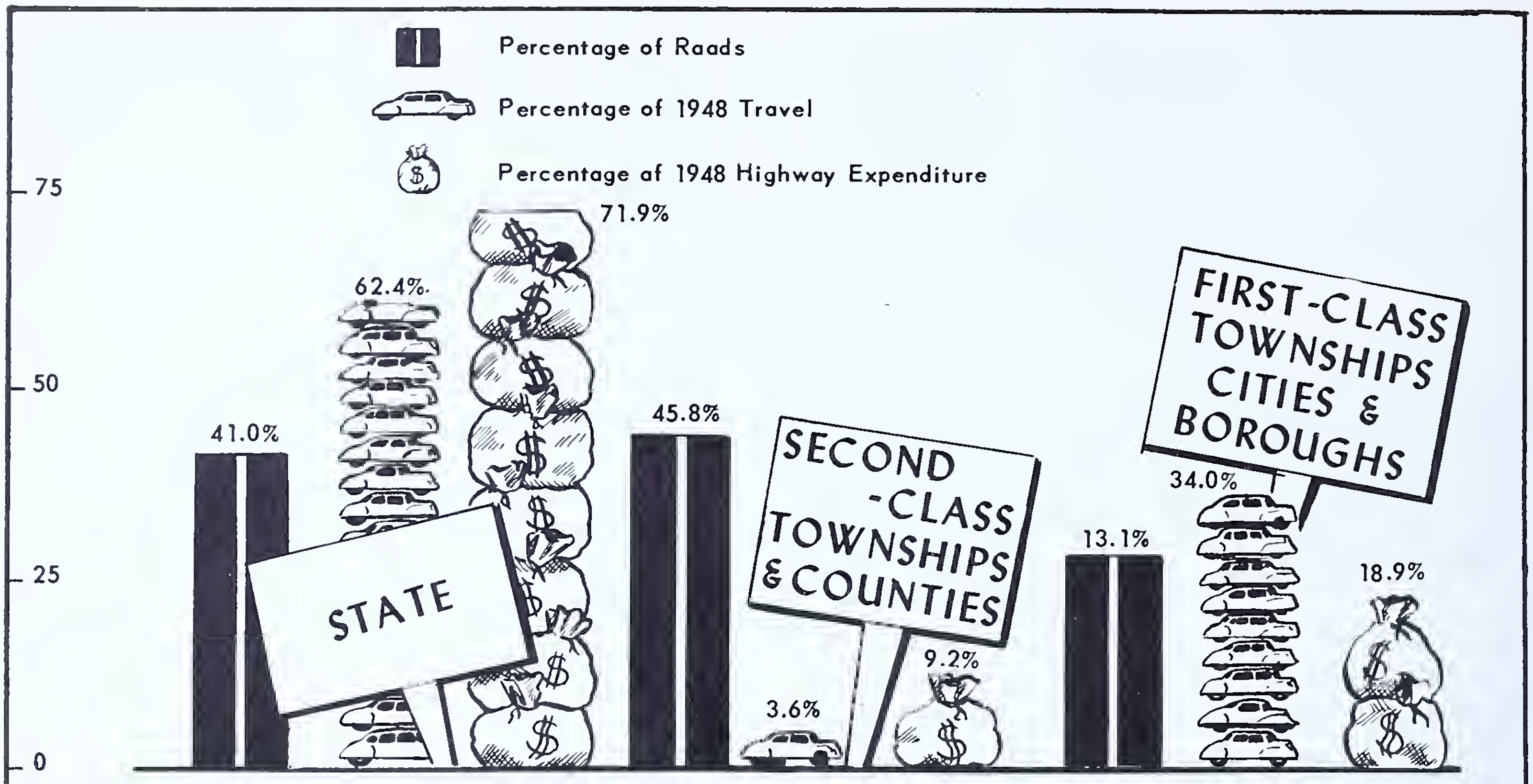


CHART I-1
RELATIONSHIP between MILEAGE, TRAFFIC and EXPENDITURES
PENNSYLVANIA HIGHWAY SYSTEMS

variety of services performed by all roads require a continuing but unequal flow of highway investment, this activity in itself represents only part of the problem placed on the administrative units. In the last 10 years costs have been climbing faster than income. Chart I-2 shows the percentage change in State highway building costs and in State highway revenue.

Since 1940, in every year except one (1941) the income index has been below the construction price index. Between 1940 and 1948, construction costs more than doubled while revenues increased by less than 60 percent. The one-cent increase in the gasoline tax in 1949 improved revenues materially, but even with this increase and with a decline in construction costs revenues still lagged behind costs in 1949.

Maintenance costs also rose during this period. In 1941 the State paid $400 per mile for all maintenance costs. By 1946 the costs had increased to $661 per mile. Since then there has been some decline but the 1949 cost of $636 per mile was still nearly 60 percent above 1941.

Under these conditions of limited highway revenue, there has been no choice left to units of

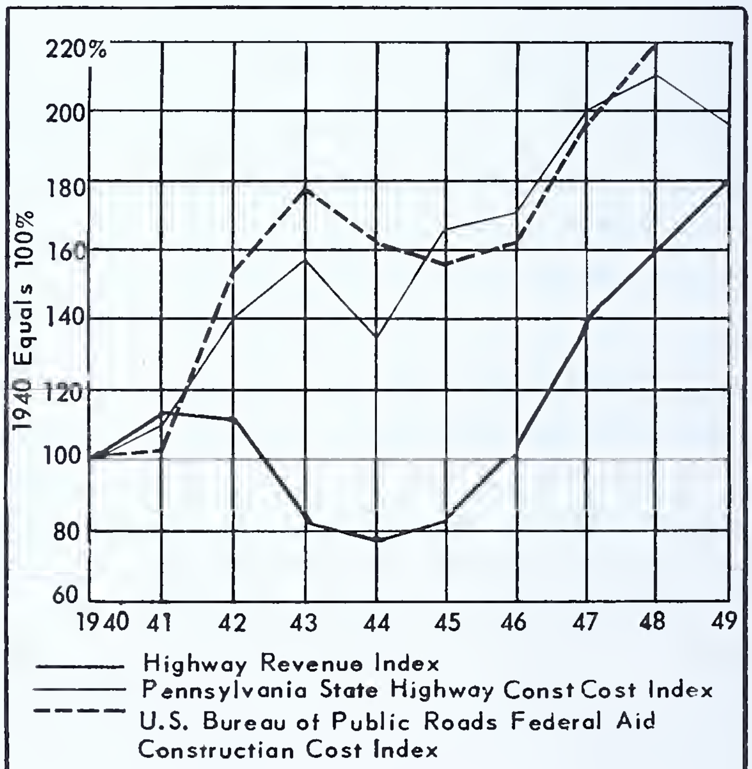


CHART I-2
COMPARISON of CONSTRUCTION COST AND REVENUE INDEXES
1940-1949

government but to curtail construction and to spend more money on keeping up existing highways. During the war period the lack of balance between income and highway construction needs was not critical, since construction was limited by the demands of the war effort. Road improvement programs were of necessity deferred. At the same time the purchasing power of whatever surplus of road funds did accumulate declined because of inflation.

This combination of major cost increases, lagging revenues and deferred highway work has created a serious problem of financing the construction programs of all governmental units. The current war developments intensify these problems.

Looking to the future, it is not possible to say what conditions will prevail. The State and its subdivisions can, within reasonable limits, control their revenues and plan suitable highway programs, but fluctuations in the price level will remain an unpredictable and uncontrollable element. While any important decline in the price of labor and materials will benefit all plans, such a decline hardly seems possible in the immediate future. Nor is it feasible to attempt to predict the extent of any increase. The Commission, therefore, feels that the only practicable course in a study of this kind is to deal with prices as they are today.

Changes and Improvements in Road Mileage

Total road mileage has not increased significantly since the coming of the motor vehicle. The annual report of the Department of Highways in 1914 gives the total road mileage as 97,850 miles compared with 99,785 miles in 1950—an increase of only two percent. Most of this small additional mileage has come in new urban developments. Mileage in many urban, as well as some rural areas, has been steadily increasing. This increase has been very largely offset by the abandonment of some rural roads and trails.

Road improvement is thus the main highway change that has been brought about by the motor vehicle. Smooth all-weather road surfaces have become necessary to accomodate fast-moving vehicles.

The Lincoln Highway--U.S. Route 30--as it appeared in 1911.

There is no record of road development prior to 1917. However, records since that time clearly indicate the trend toward better roads, as shown in Chart I-3.

Since 1924 the improved State mileage has increased from 50 percent to 90 percent of total mileages in the combined State Highway System and State Rural System. An "improved road" is defined as any road which has a well graded roadbed and a surface

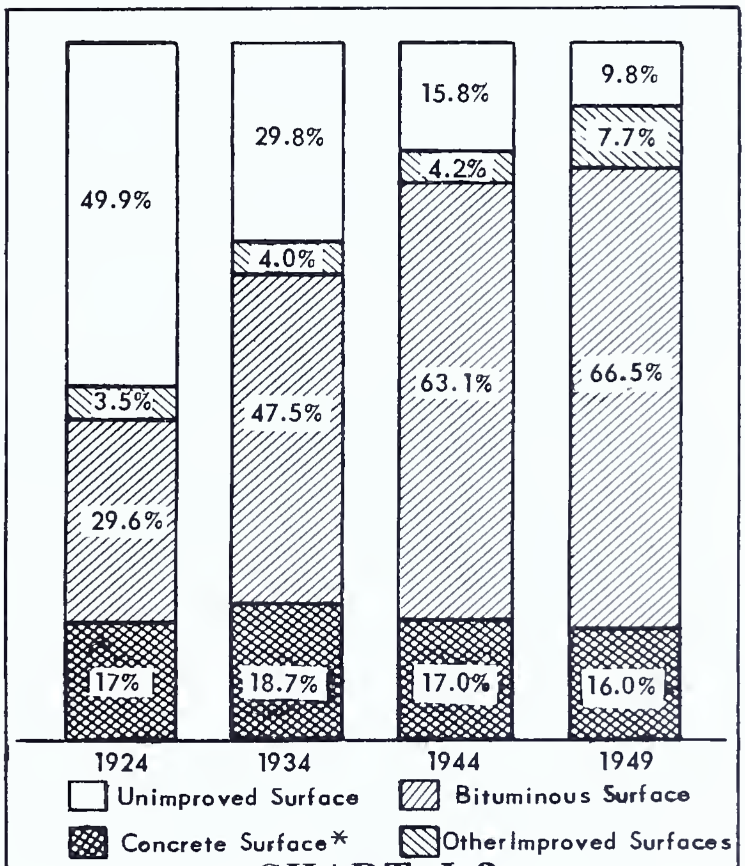


CHART I-3
TOTAL STATE MILEAGE
by SURFACE TYPE
for SELECTED YEARS

*Includes dual type

of crushed stone or gravel, or a surface of higher type such as asphalt or concrete.

Not only are roads being provided with improved all-weather surfaces, but there is also a trend toward the better types of all-weather roads. This is evidenced by the fact that in 1917 the State had 1,638 miles of concrete or bituminous road surface on its roads compared with 33,979 miles in 1950. Percentagewise this amounts to 16 percent of total State mileage in 1917 and 83 percent in 1950.

No similar records exist as to the development of local roads, but available data show that an extensive mileage of such roads has been improved to at least an all-weather status during this same period.

Trends Affecting Highway Development

The constant increase of traffic on Pennsylvania's highways and its changing character adds considerably to the task of providing adequate highway facilities. Some of the principal factors contributing to this problem are:

> Continued increase in population, particularly in urban centers;
>
> An increasing number of motor vehicles, particularly commercial vehicles; and
>
> Far more extensive use of motor vehicles.

POPULATION

Pennsylvania's population is constantly increasing. The changes since 1900 are shown in Chart I-4.

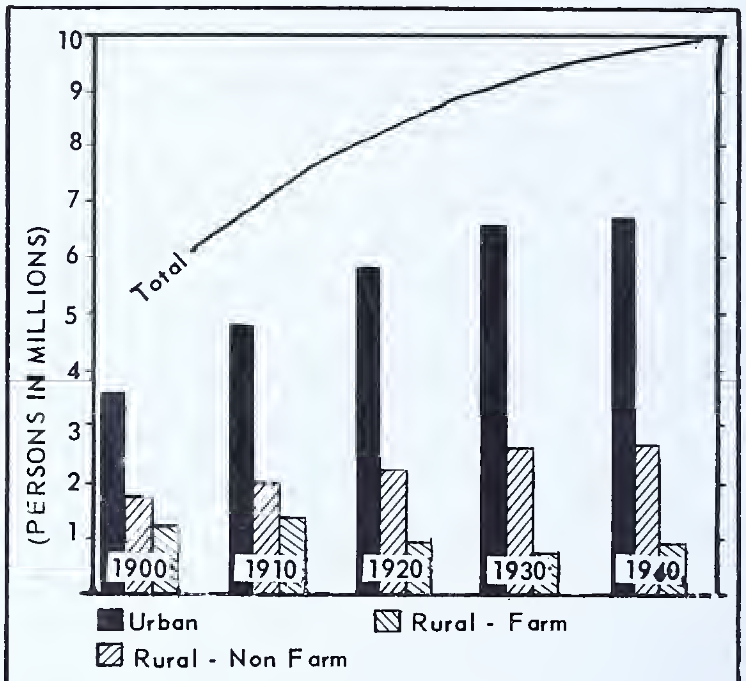
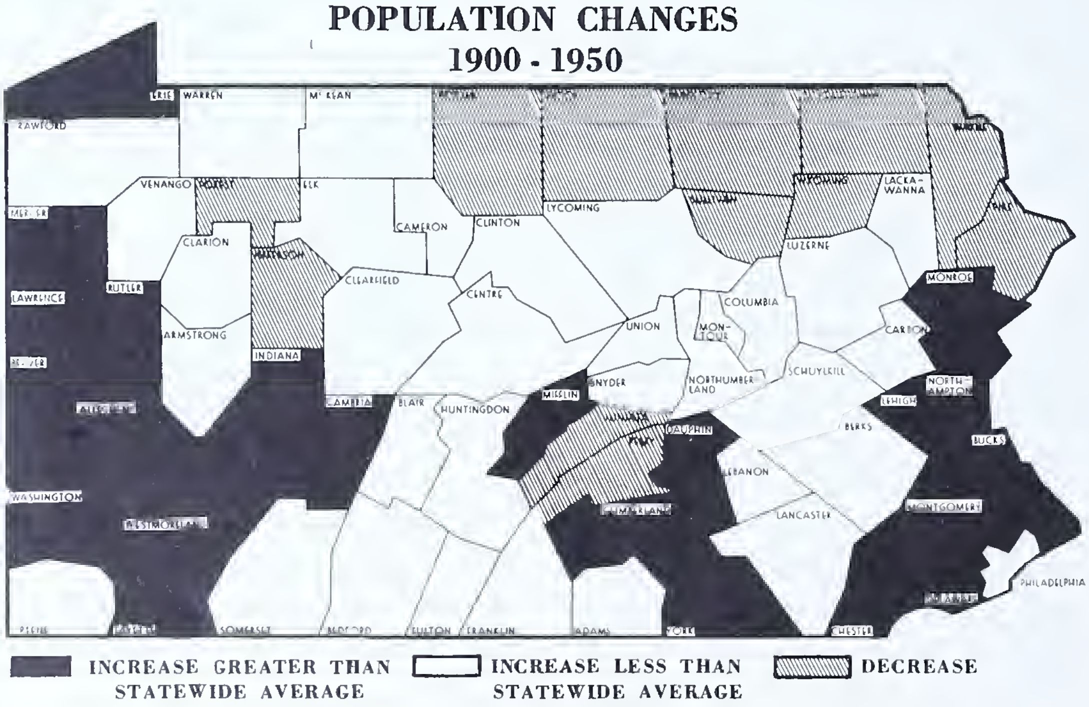


CHART I-4
STATEWIDE POPULATION DISTRIBUTION
1900 - 1940

CHART I-5
POPULATION CHANGES
1900 - 1950



This trend has been accompanied by a rapid increase in highway travel, but the population increase has not been the same throughout the State, and thus its effect has not been uniform. Chart I-5 indicates the pattern of population increase, which has been largely in urban areas.

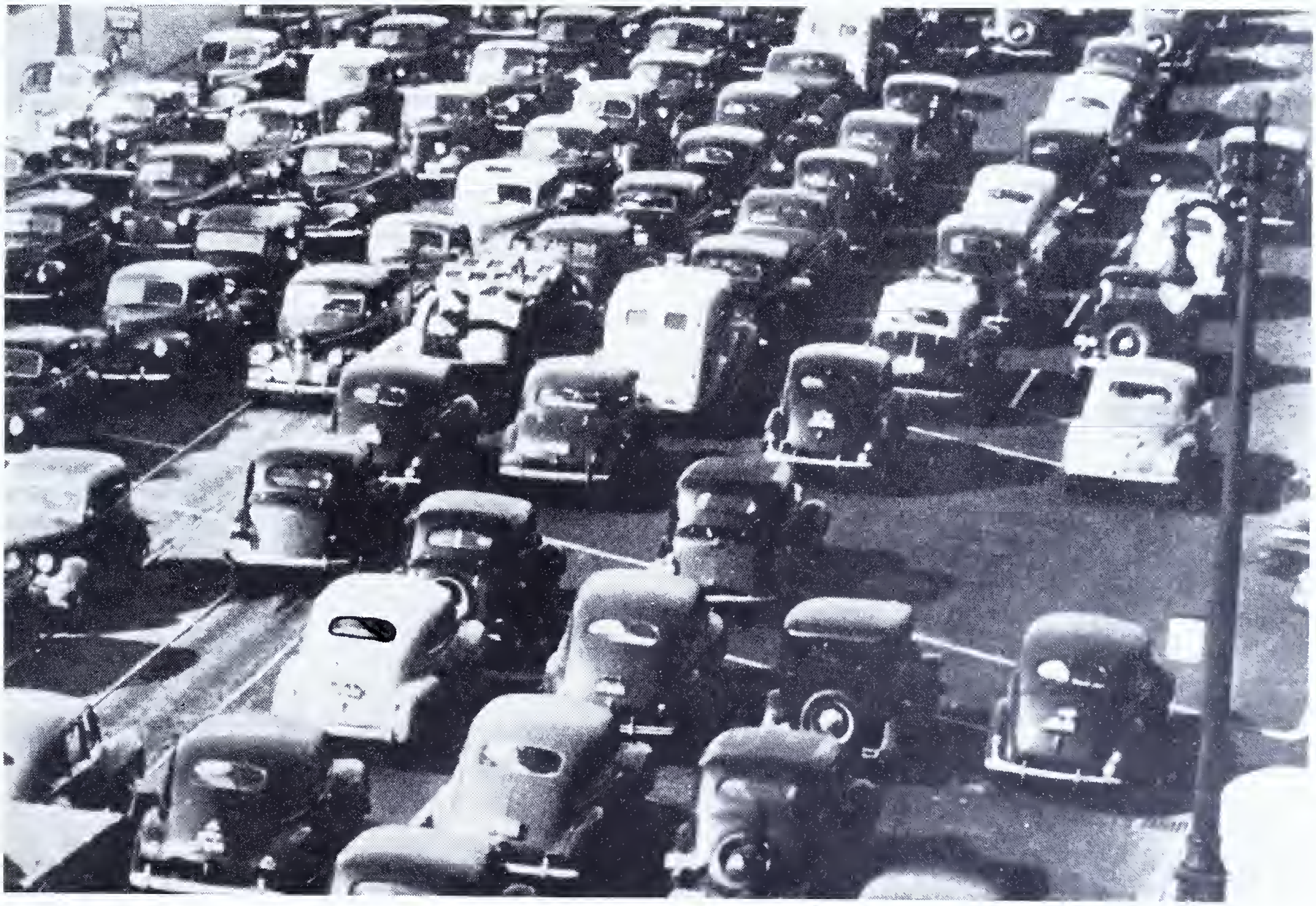
The pronounced trend toward urbanization is of particular importance. In the late 1800's Pennsylvania's population changed from predominantly rural to predominantly urban. Chart I-4 illustrates the pronounced trend toward urbanization since 1900. U.S. Census data on this point for 1950 are not available, but estimates by the State Planning Board indicate that this trend has continued since 1940.

The significance of this trend toward urbanization lies in the fact that it further accentuates the the acute problem of traffic congestion in urban areas, as most motorists throughout the Commonwealth are well aware.

Although the urban mileage (urban places are defined in this Chapter as including all cities, boroughs and first-class townships) is only 16 percent of the total road mileage in the State, it carries more than half of all the vehicle miles of travel in the State (see Chart I-6).

Furthermore, the average daily traffic on urban mileage in 1948 was more than six times that on rural mileage. The situation is made more difficult by the high property values in the urban areas which make road widening and relocation exceedingly costly.

Last, and of equal significance, is the expectation that Pennsylvania's population will continue to grow for some years. A projection of trends indicates that by 1970 the population will total about 11,250,000 people. There will be more and more people to own cars, many of whom will want to live in or near cities, and all of whom will want to use the roads of the State.



Urban traffic congestion is one of today's major highway problems. One-third of all Pennsylvania traffic is carried on city streets.

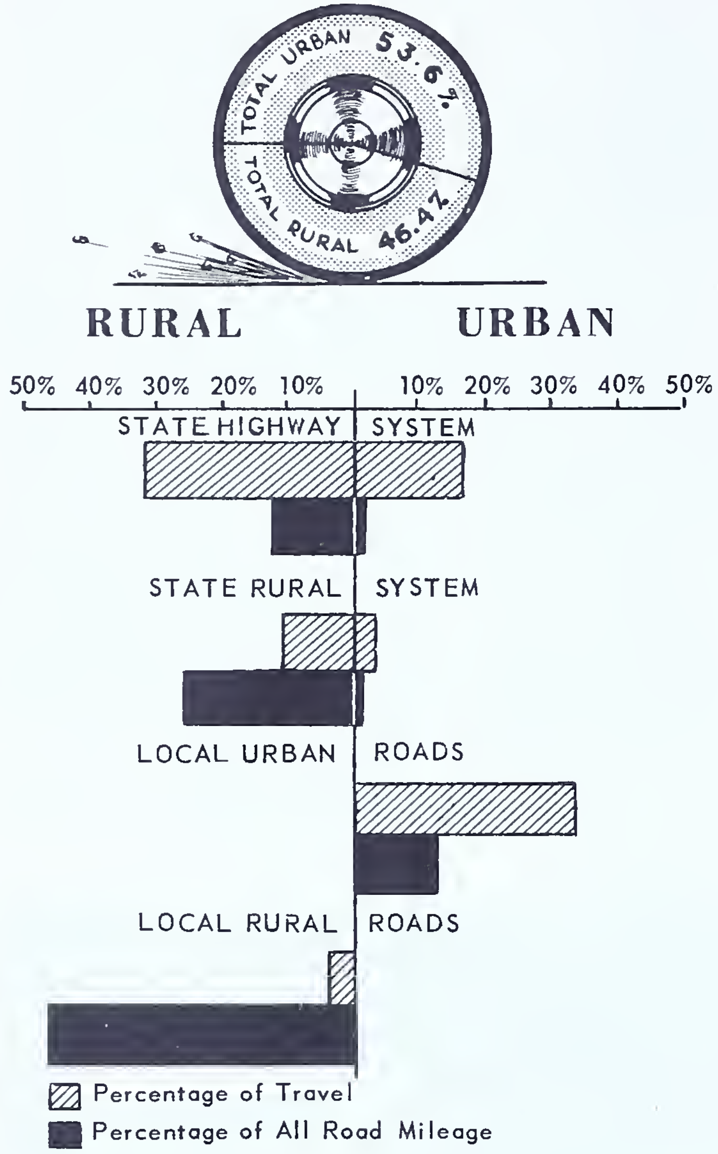


CHART I-6
URBAN and RURAL VEHICLE TRAVEL in PENNSYLVANIA

MOTOR VEHICLE REGISTRATION

Motor vehicle registration is another indicator of highway usage. It reveals how important the motor vehicle has become to the economy. Chart I-7 shows the increase in registration and, of more importance, the increase of vehicles in proportion to the population.

Registration statistics also reveal that commercial vehicles (buses, trucks, tractors and trailers) increased their share of total registration from 14.4 percent in 1929 to 19.4 percent in 1949. The numerical increase was 120 percent for commercial vehicles as compared to 54 percent for passenger cars.

There also has been a significant increase in the weight of motor trucks. In 1941 the average weight per truck (this comparison includes the motor vehicle classes R,S,T,U,V,W,Y,Z,WZ and ZZ) was 10,554 lbs. By 1948 the average had risen to 11,558 lbs.

The increase in the number of passenger cars and in the number and weight of buses, trucks, tractors and trailers necessitates the construction of more and more expensive roadways. This has added considerably to the cost of highway programs. Moreover, it seems reasonably certain that this overall growth in registrations will continue. It also seems likely that the number of trucks (and also their average weight) will rise more rapidly than passenger cars, so that in future years commercial traffic will become increasingly important in highway planning.

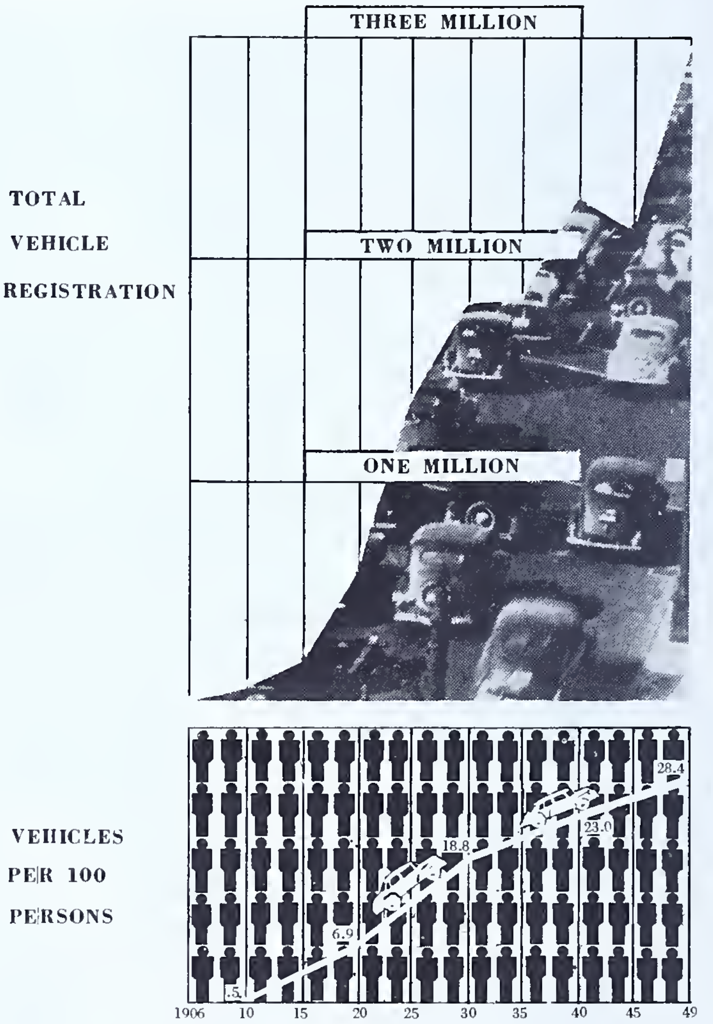


CHART I-7
MOTOR VEHICLE REGISTRATION IN RELATION TO POPULATION-SELECTED YEARS

The relative importance of Pennsylvania's commercial traffic is constantly increasing.

VEHICLE TRAVEL

The general increase in the use of highways is well illustrated by vehicle miles of travel. Chart I-8 shows the past and estimated future travel on the highways of the State.

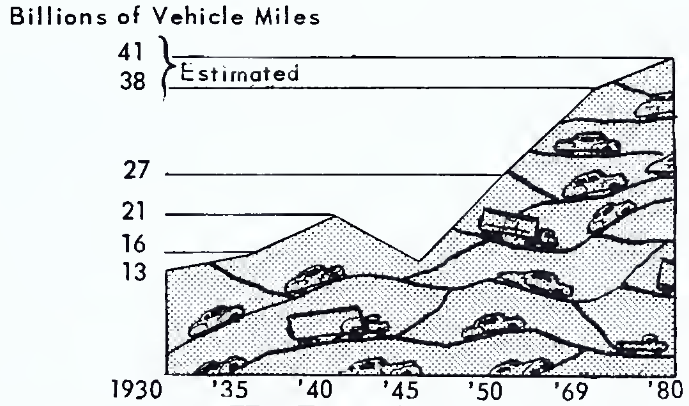


CHART I-8
TREND in VEHICLE TRAVEL on PENNSYLVANIA HIGHWAYS

Vehicle miles not only reflect larger registration, but also show the tendency of all motor vehicle operators to drive greater distances each year. The estimates of future traffic as shown in Chart I-8 are, of course, subject to the hazards of all forecasts,but they do sustain the belief that this rising trend of travel will continue for many years to come.

Effects of Industry and Agriculture

Pennsylvania's industrial output was valued at about $18.5 billion in 1948 - well over double that of 1929. Between 1940 and 1950 there was a net gain of more than 34,000 business enterprises. Assuming that the commercial need for highway facilities follows industrial expansion, it is apparent that such demands have grown considerably. However, as is the case with population, the pattern of growth within the State is uneven.

Agricultural production also is increasing despite the strong urbanization trend. Its income of $837 million in 1948 was the highest in the history of the State. As a result of increased highway use, an estimated 97 percent of all agricultural commodities in the northeastern United States moved by truck from the farm to the initial market in 1948. 4

Aside from shipments of produce, other highway requirements of agriculture also have increased. The

Pennsylvania roads link 170,000 farms with each other and with their markets. About 97% of farm products reach their initial markets by road.

modern farm is not as economically independent as it formerly was. Today's farmer must go to town many times more often than in the past to purchase his supplies and equipment. Many services, such as electricity, telephones and the traveling grocer, are now brought directly to the farms. Motor fuel trucks, repair trucks, the public health nurse and the veterinarian all have become frequent visitors in rural areas.

The growing importance of highways in the State's economy is further indicated by the great increase in the volume of goods carried by trucks. A survey by the State Department of Highways and the United States Bureau of Public Roads in 1924 (published 1928) indicated that the total cargo moved in that year on the State Highway System was between five and six million tons. In 1948, out-of-state truckers destined for points outside of Pennsylvania moved a total of six million tons of cargo *over the Pennsylvania Turnpike alone*, with both industry and agriculture contributing to this increase.

Additional Highway Uses

Recreation generates extensive highway use, particularly during summer and fall. Pennsylvania with its scenic beauty and recreational facilities attracts the fourth largest amount of tourist trade of all the states. The Pennsylvania Department of Commerce estimates the value of this trade at $600 million annually. The tourist business requires an extensive network of good all-weather roads, and Pennsylvania must have such roads it it is to continue to attract visitors.

The rural mail carriers can give satisfactory service only if the roads over which they travel are in good condition the year round. Pennsylvania's mail carriers travel over 70,000 miles of the State's highways every working day of the year.

Rural letter carriers travel 70,000 miles a day to serve two million Pennsylvania citizens.

The old red brick one-room schoolhouse is fast disappearing, as modern educators recognize the advantages of consolidating school districts. Consolidations mean that school buses must travel many miles every school day of the year to deliver students to the schools in the morning and return them to their homes in the evening.

Rural churches also have become increasingly dependent upon the automobile, as people travel greater distances to attend services and other church activities.

In addition to the everyday needs of citizens, the highways must be ready to serve in any emergencies that may arise. They must constantly be in condition to bear their part in national defense; they must help in providing police and fire protection; and they must be ready for the calls of doctors and nurses.

Fluctuations in Highway Traffic

Traffic varies greatly during certain months of the year, days of the week and hours of the day. Any highway program must be reconciled with this situation. For example, the State Department of Highways has found that traffic during August is 74 percent greater than traffic during January, and that Sunday traffic is 57 percent higher than Wednesday traffic. Extreme hourly fluctuations in traffic are, for the most part, peculiar to urban areas, because of morning and evening rush hours. In all cases, road facilities should be such that they can effectively serve the traffic during its peak period.

Need for a Program

These anticipated changes in Pennsylvania's population, economy, vehicle registration and travel all point to a continuing need for improving our roads. The steady growth of industrial and agricultural production indicates further that business and farming will rely to a greater and greater extent upon good highways. Other services such as recreational needs, school and mail travel, national defense and personal uses also will continue to make demands on the highways, and heighten the need for their further improvement.

Yet, because of wartime and postwar construction delays and material shortages, the highway system has fallen behind the demands placed upon it by highway users. The results have been highway congestion, unsatisfactory driving conditions, numerous traffic delays and inconveniences of all kinds.

As might be expected, a further result has been increasing pressure to solve immediately a problem for which there was no immediate answer, since too little was known about the highway system of Pennsylvania. To insure a satisfactory solution to the problem, more facts were necessary.

More particularly, it became apparent that a study should be made of the present condition of all roads, especially as they related to the needs of all user groups. At the same time, a thorough analysis was needed of the ability of various governmental groups to handle their share of financial responsibility for any improvement program and their ability to build and maintain roads, in accordance with the standards set by their use.

There was definite need for some plan which would:

1. Enable the roads of the State to be developed in an orderly manner;
2. Make it possible to evaluate the urgency of improvement needs and so establish some system of priority; and
3. Enable a cooperative highway effort on the part of the State, Federal Government and political subdivisions to determine the proper share of each in carrying it out.

The acute nature of this general problem is felt by every unit of government. Many appeals have been made for more effective legislation, especially financial help, to remedy the needs of State highways, township roads and city streets. Faced with appeals from all directions, neither the legislature nor the individuals involved could properly evaluate these demands. Only by means of an overall study would it be possible to view the requirements of each kind of road in comparison with the others.

Thus it was finally felt by all concerned that a comprehensive study of the entire motor vehicle transportation system was imperative. To meet this situation, the Highway Planning Commission was established by the legislature, and this study is a result of its work.

Statement of Aims

In proposing a long-range highway program, the Commission believes that recognition must be given to the principle that a proper balance should be maintained between the need for highway work and the other needs of government, as represented by schools, health and sanitation, protection to persons and property and other necessary activities. Difficult as such an evaluation may be, any plan for highway development obviously cannot be achieved at the expense of other essential services.

With this thought in mind, it is hoped that from the study there will emerge:

Road Classification

A recognition of the essential differences between roads of statewide importance and those of local interest which will result in the designation of one or more definite systems. Each system should have clearly defined characteristics of travel and service use.

Improvement Program

A further recognition that each of these systems will require a different degree of improvement and, hence, capital investment. And further, that balancing such investment will lead to a more integrated and satisfactory highway network.

Adequate Highway Financing

An awakened public consciousness of the high cost of road improvements and of the continuing need not only to build but to maintain highways. And further, that adequate financial support by all responsible units of government is a necessity for adequate highways throughout the State.

Improved Engineering and Administrative Standards

A recognition of the value of engineering control wherever possible on each road system and of the desirability of closely linking highway needs with adequate administration.

Salvaging of Existing Roads

An appreciation of the need to retain and to salvage as much of our present road mileage as is possible if the costs of an overall highway program are to be kept on a reasonable level.

Varying Highway Needs

A realization that highway planning must recognize variations throughout the State in industrial, agricultural and population growth if future traffic volumes are to be accommodated adequately.

Thus this study offers a road program which will coordinate vehicle travel, highway improvement needs, revenue and administration at all levels of government. Proposed expenditures are within the capacity of the public purse and it is hoped that all consequent benefits to be gained by the traveling public have been clearly demonstrated.

II

ROAD CLASSIFICATION

What Classification Is

In one sense, Pennsylvania roads already are classified. They are grouped or designated according to the governmental agencies which control them: the State Highway System, the State Rural System, County Roads, City and Borough Streets, and First- and Second-class Township Roads.

This classification, however, pays no attention to the kind of service the roads and streets are expected to give. The Commission, therefore, determined that the roads and streets should be classified into groups or systems, based on the nature of the service rendered; that is, the kind of use made of the road.

CLASSIFICATION OF ROADS ON USE BASIS

The Commission has used this basis of classification to divide all public roads and streets into the four proposed road Systems, as follows:

1. Trunkline Highways.
2. Intercommunity Roads.
3. Community Service Roads.
4. Local Roads.

Trunkline Highways. These constitute a continuous, integrated system of major roads, serving the long-distance traffic flows of different regions, connecting cities and the more important boroughs with one another, and meeting the principal roads of neighboring states in such ways as to form a well designed interstate network.

Intercommunity Roads. These are next in general importance to the Trunkline Highways. They serve county-wide, inter-county, or inter-area needs within the State. Unlike the Trunkline System, the Intercommunity System is not a continuous System. It is complementary to - that is, it feeds - the Trunkline System, helping to fill in the areas bounded by the Trunkline Highways.

Community Service Roads. These roads predominantly serve community interests within a county or adjacent areas of two or more adjoining counties. They are the roads which make community life possible in the country or city. They give access to points of local or community interest, such as schools, churches, small factories, and shopping or recreational centers. Generally speaking, in rural areas they are school bus and milk-collection routes. In urban areas, they form the network of minor traffic arteries connecting neighborhood areas with one another or with the nearest Intercommunity Roads and Trunkline Highways. These roads constitute many small regional systems, each continuous within its own area.

Buses use Community Service and Local Service Roads to carry thousands of Pennsylvania children to and from their schools every day.

Local Roads. All public roads and streets not included by definition in one of the preceding classifications fall within this classification. Their essential characteristic is the preponderantly local character of the traffic using the roads. Usually it is a light traffic, originating or terminating on the roads themselves and feeding into the three other general road Systems.

Variations in use. Under the classifications proposed, however, each section of road, no matter how classified, would be likely to have more than one type of use. For example, U.S. 30, besides connecting Philadelphia with Coatesville and Lancaster, also serves traffic among the dwellings fronting on that road. To such an extent, it is a Local Road as well as a Trunkline.

At the other extreme, a farm in Wayne County might be the destination of a vehicle entering the State from West Virginia and, therefore, making more than a local trip. Thus the road ending at the farm gate would sometimes carry other than local traffic.

In each case, however, the *proponderant* traffic using the road determines the road's classification.

How Classification Was Made

The Commission's road classification was made in three stages. The first step was to make a preliminary designation of the systems on the county road maps of the Department of Highways. Proceeding county by county, the roads that appeared to meet the definition of Trunklines were first selected and marked as such. Then the roads with an Intercommunity use were identified. Those that appeared to serve a Community Service purpose were next marked. The remaining mileage automatically fell into the Local Road classification. Before this work was considered complete, maps of all adjacent counties were studied jointly to avoid inconsistencies at county boundaries.

Next, all maps were reviewed in the field by the Commission's engineering staff in cooperation with the district township engineers and other staff members of the district offices of the Department of Highways.

The third and last stage was the careful review in the Harrisburg office of changes proposed by the field engineers.

The Commission believes that any final and binding classification of the roads of the Commonwealth should be made only after public hearings in each county, and does not suggest that the Systems presented in this report are perfect in all details, and should be considered final. However, the Commission does believe that the Systems as presented are essentially in compliance with the road definitions on which they rest, and that they form a satisfactory basis for the discussions in this report. In a later chapter, the Commission proposes legislation to establish such road classifications.

Road Systems Resulting from the Proposed Classifications

The four proposed Systems into which the Com-

Table II-1

MILEAGES OF PROPOSED SYSTEMS[a]

Road System	*Rural*	*Urban*	*Total*
Trunkline	7,359	570	7,929
Intercommunity	10,034	331	10,365
Community Service	14,409	339	14,748
Local	58,951	7,870	66,821
Total	90,753	9,110	99,863

[a] This total mileage does not agree exactly with the total mileage of roads and streets now in use, as it gives consideration to proposed relocations to improve alignments, and to by-passes around congested areas. It also excludes 327 miles of the Pennsylvania Turnpike which was not inventoried for reasons set forth in Chapter III.

mission has classified all the public roads in the Commonwealth have mileages as shown in Table II-1.

This table indicates a continuous increase in the mileage of each road classification, from Trunkline Highways to Local Roads. This is clearly brought out by Map 1, which shows all four road Systems for Mercer County. The number of cities and other large communities in the State is less than the number of moderate-sized communities, and since the Trunkline System provides the connecting links between the large communities, that System has the fewest miles. The moderate-sized communities, in turn, are fewer than small communities and the latter are much fewer than the individual properties. This same relationship follows in the mileage of the other Systems. A large mileage of Local Roads gives access to the hundreds of thousands of homes and farms in the State.

The Mercer County map clearly shows the interrelationship of the four proposed Systems which unite to form a well integrated road network, with each of the four parts having a definite function to perform.

It is impractical to include in this report a road classification map for each county. The Mercer County map, however, illustrates how this classification plan would work out. The proposed classification plan has been shown on a complete series of the Pennsylvania Department of Highways' county maps which have been filed with the Governor. These maps show, in distinctive colors for all counties, the four road Systems as they are shown in Map 1. In addition, the maps show the legislative and traffic route numbers of all roads, so that exact identification of any road may be made.

TRUNKLINE HIGHWAY SYSTEM

Map 2 shows the proposed Trunkline System for the entire State and the distinguishing characteristics of the Trunkline System:

1. It connects all the larger population centers in the Commonwealth.
2. It accommodates long-distance traffic flows (and, of course, much short-distance traffic as well).

Because Map 2 does not extend beyond the limits of Pennsylvania, it cannot show how the Trunkline System integrates with the major roads of adjoining states. Also, since the scale is too small, the map does not extend into cities and 382 miles of Trunklines continued through the cities are not shown.

In Map 2 (and also the other maps in this report) the Trunkline Highway System is shown as the Commission proposes it should be in 1962. Consequently, the map shows some sections of road that do not now exist, where it is proposed that an additional road be built to relieve traffic congestion, or that an existing crooked road be replaced by a straighter one. Conversely, the crooked sections proposed to be replaced are not shown, since they would not continue to be part of the Trunkline System. The Pennsylvania Turnpike, including its Eastern and Western Extensions, is classified as a Trunkline Highway, since it performs a Trunkline service.

INTERCOMMUNITY ROAD SYSTEM

Map 3 shows, on a statewide basis, the Intercommunity Road System, projected against a background of the Trunkline System to show the interrelationship of the two. Map 3 brings out the fact that the Intercommunity System is not continuous across the State, but that it complements the Trunkline System. Map 3 also illustrates the figures given in Table II-1 which show that the Intercommunity Road mileage is substantially greater than the Trunkline Highway mileage.

Traffic Patterns Emerging from This Road Classification

EXTENT OF ROAD USE

The unit for measuring traffic movement is the "vehicle-mile" - that is, one vehicle traveling one mile. In 1950, there were approximately 27 billion vehicle-miles of travel over Pennsylvania roads. (This is equivalent to an average annual travel of 9,100 miles for each of Pennsylvania's 2,950,000 registered automobiles, buses and trucks.)

The percentage of miles of roads and of vehicle-miles of travel for each of the four road classifications is shown in Table II-2 and in Chart II-1. (In this table, as elsewhere in Chapters II, III, IV and V, urban places are defined as all cities, boroughs and first-class townships over 10,000 population. All other areas are considered rural.)

This table shows the concentration of traffic on a relatively small portion of the road mileage. The Trunkline System has less than one mile in 12 of the total public road mileage of the State, but it accommodates two out of every five vehicle-miles of travel. At the other extreme, the Local Road System has more than eight times the Trunkline mileage, but handles less traffic than the Trunkline Highways. Mile for mile, the Trunkline Highways carry the heavy traffic of Pennsylvania.

Table II-2 also compares the road Systems and their use on an urban-rural basis. The urban portions of the Trunkline System are a very minor fraction of the total Pennsylvania road mileage - just over one-half of one percent. Yet they accommodate nearly five percent of the traffic movement.

At the other extreme, the Local Roads in rural areas have nearly 100 times the mileage of the urban Trunklines, but this 59,000 miles of roads accommodates only one and one-half times the traffic that moves over the 570 miles of urban Trunkline Highways.

The table strikingly illustrates the tremendous diversity of road problems that confront the State, ranging from those of the very heavily traveled main arteries in cities to the very lightly traveled roads

Table II-2

PERCENTAGE OF ROAD-MILES AND VEHICLE-MILES ON THE PROPOSED ROAD SYSTEMS IN URBAN AND RURAL AREAS

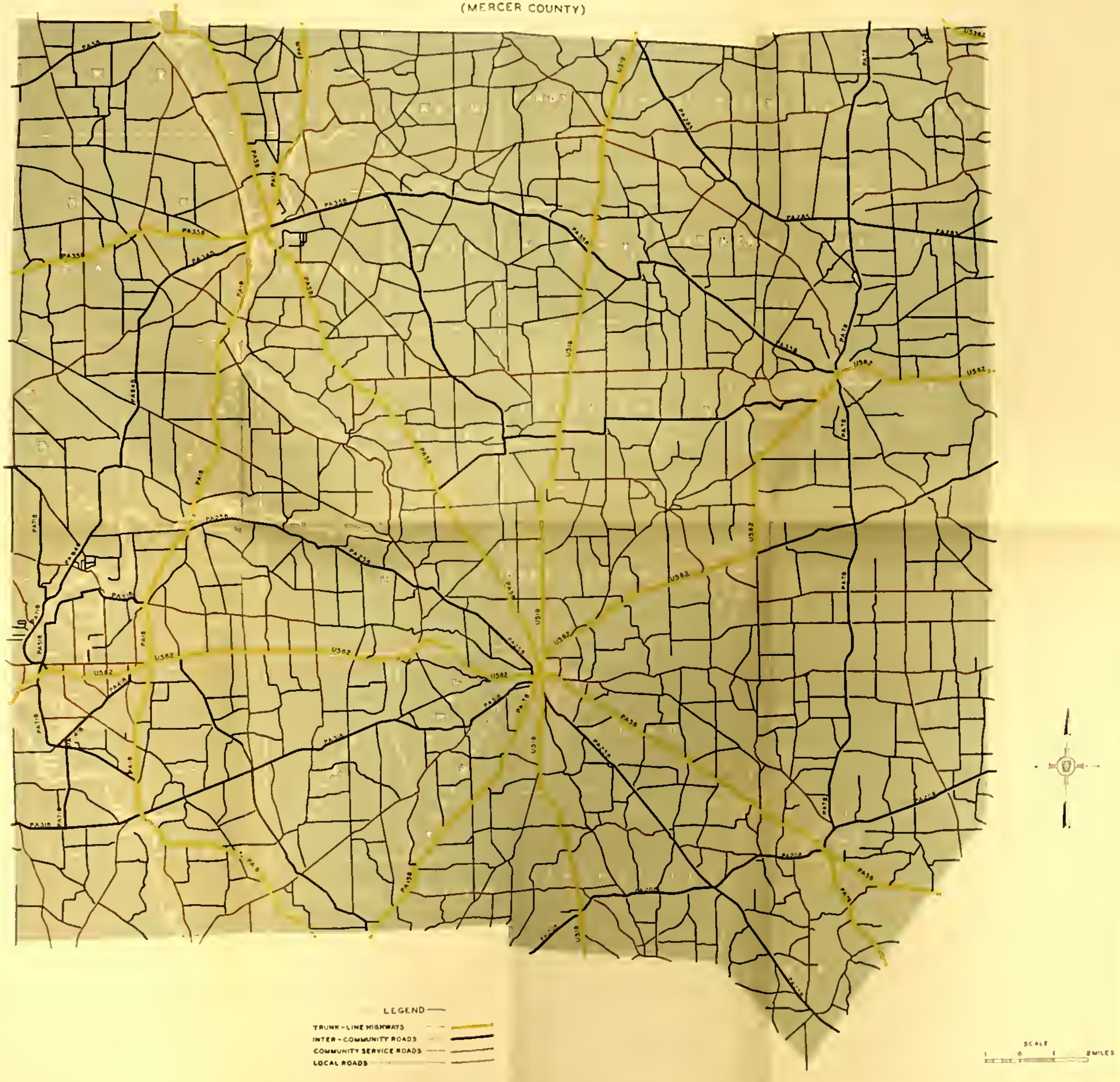
(Estimated for 1950)

Area	*Road System*	*Percentage of Road-Miles*	*Percentage of Vehicle-Miles*
Urban	Trunkline	.6	4.8
	Intercommunity	.3	1.9
	Community Service	.3	1.1
	Local	7.8	30.0
	Subtotal	9.0	37.8
Rural	Trunkline	7.4	34.6
	Intercommunity	10.0	14.3
	Community Service	14.4	5.9
	Local	59.2	7.4
	Subtotal	91.0	62.2
	Total	100.0	100.0
Combined urban and rural	Trunkline	8.0	39.4
	Intercommunity	10.3	16.2
	Community Service	14.7	7.0
	Local	67.0	37.4
	Total	100.0	100.0

COMMONWEALTH OF PENNSYLVANIA MAP I HIGHWAY PLANNING COMMISSION

PROPOSED ROAD CLASSIFICATION

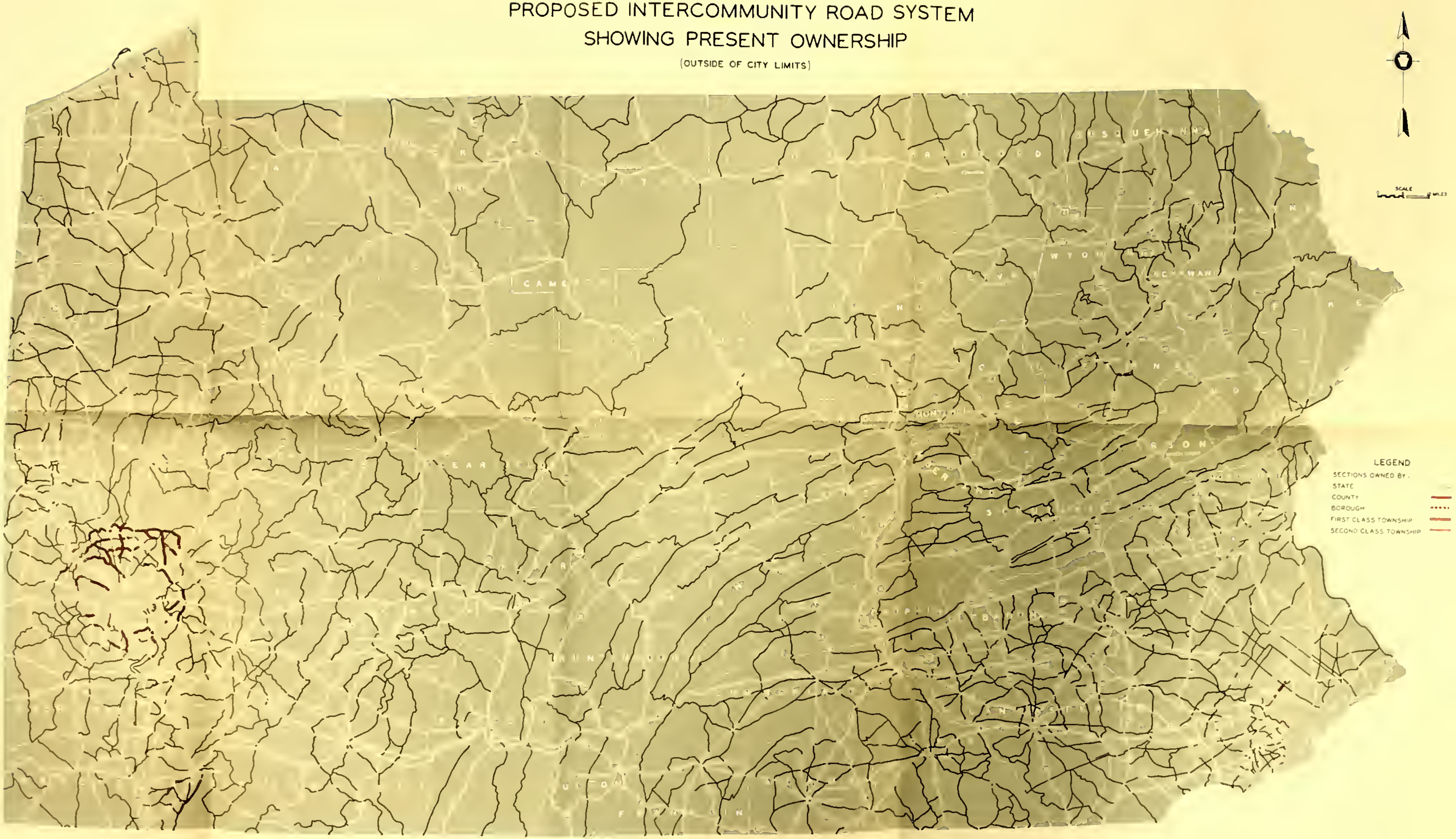
(MERCER COUNTY)



COMMONWEALTH OF PENNSYLVANIA **MAP 3** HIGHWAY PLANNING COMMISSION

PROPOSED INTERCOMMUNITY ROAD SYSTEM SHOWING PRESENT OWNERSHIP

(OUTSIDE OF CITY LIMITS)



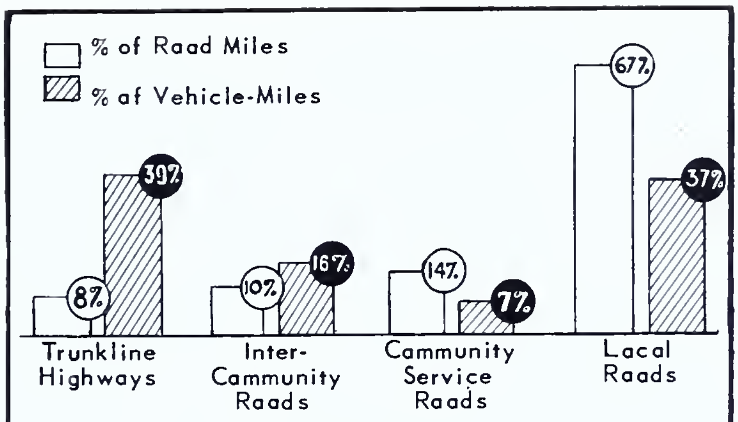


CHART II-1
ROAD MILEAGE and VEHICLE TRAVEL
1950

giving access to individual rural homes. Yet each type of road in the four Systems is necessary to the healthy economy of the State. A sound program for the development of a satisfactory road system must deal adequately with each of these extreme classes of road problems as well as those in between.

INTENSITY OF USE

The intensity of a road's use is measured by the volume of traffic it accommodates during a specified time interval. A good measure is the average daily traffic using the road - that is, the average number of vehicles traveling over the road each day during a year. For an entire road system, the average daily traffic (A.D.T.) is the average number of vehicles per day using the average mile of the entire road system.

The A.D.T.'s for the four classified Systems, and for the portions of each System in rural and urban areas, are shown in Table II-3. In addition, Chart II-2 contrasts the A.D.T. of each System with its mileage.

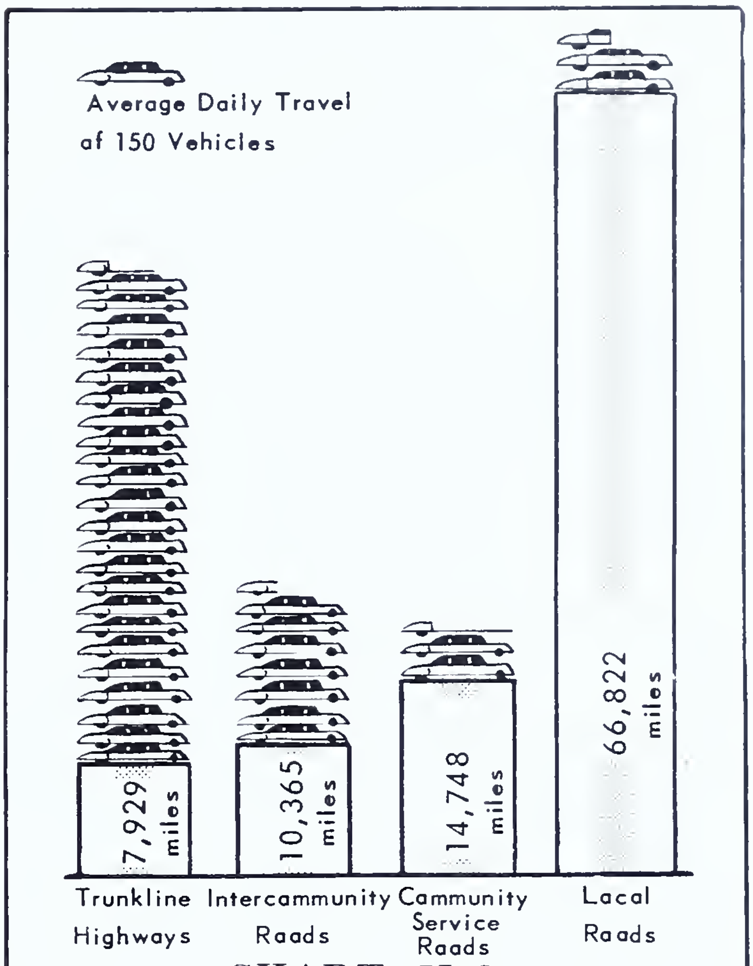


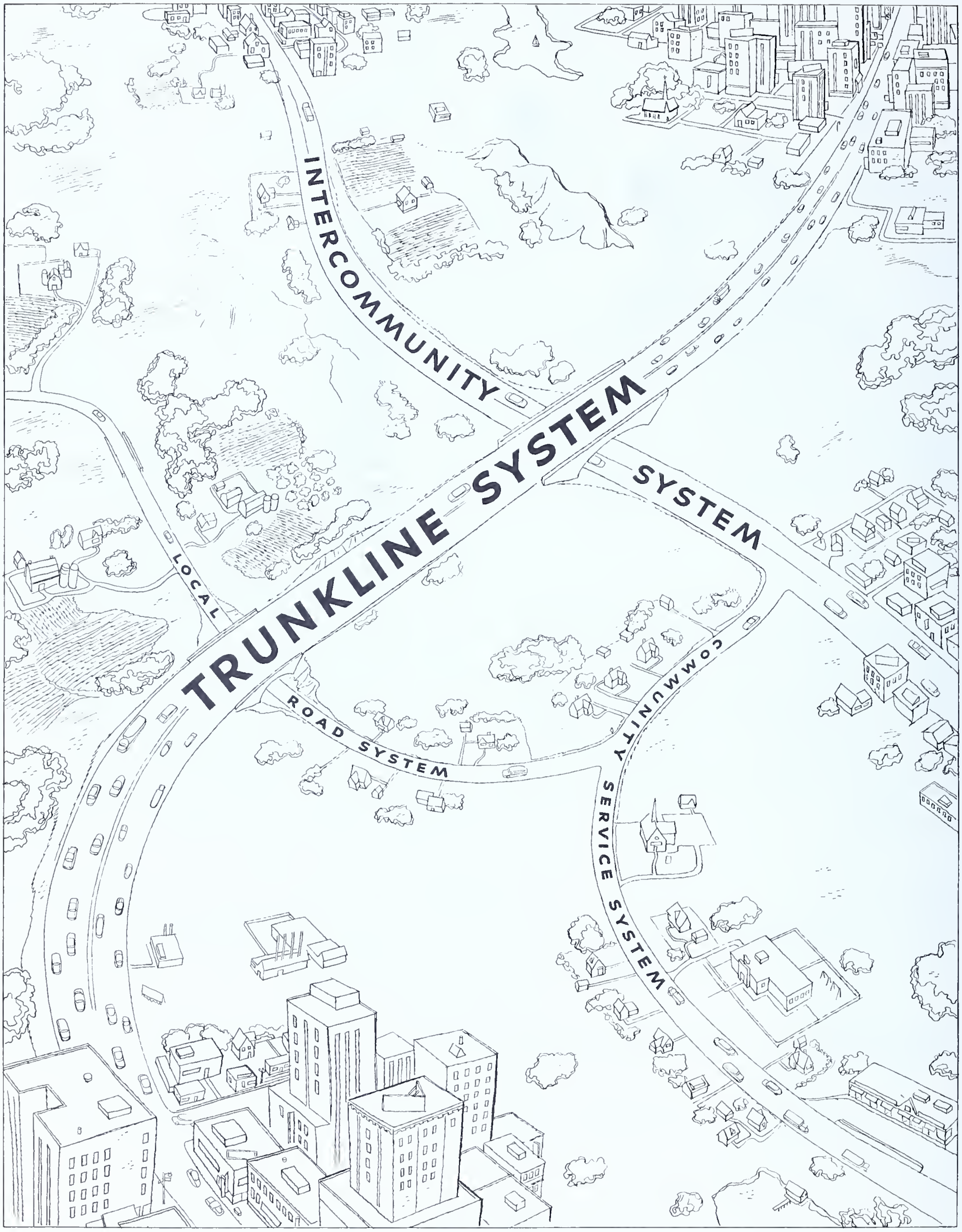
CHART II-2
TRAVEL on PROPOSED MILEAGE of CLASSIFIED SYSTEMS

Table II-3

AVERAGE DAILY TRAVEL (A.D.T.) FOR THE AVERAGE MILE OF ROAD IN EACH ROAD SYSTEM

(Estimated for 1950)

Road System	*In Urban Areas*	*In Rural Areas*	*In Urban and Rural Areas*
Trunkline	5,912	3,318	3,505
Intercommunity	4,138	1,000	1,100
Community Service	2,221	287	333
Local	2,680	88	393



CHARACTERISTICS of the PROPOSED CLASSIFIED ROAD SYSTEMS

Trunkline Highways like this carry the bulk of traffic outside of cities.

It is evident that the Trunkline Highways are much more intensively used, on the average, than the roads of any other System. This is true in both urban and rural areas, though there is less variation in A.D.T. in urban than in rural areas. In rural areas, nearly 40 times as many vehicles use the average mile of Trunklines as use the average mile of Local Roads.

Not all mileage within a single System, however, has the same degree of use. Table II-4 separates the A.D.T. on different roads into ranges.

It can be seen that the Trunkline System contains sections of roads carrying traffic volumes varying from less than 200 vehicles per day to more than 20,000 vehicles per day, and that the Intercommunity System covers almost as wide a range. This is consistent with the definitions of the two Systems which relate to the *kind* of use rather than to the intensity of use.

The intensity of road use is determined in the main by the density of the population in the area traversed by the road. A strictly secondary road in the vicinity of Philadelphia, although of no more than local use and interest, may carry many more vehicles each day than even the most heavily traveled roads in a very sparsely settled region.

People make traffic, and where there are few people there is little traffic. Nevertheless, it is appropriate that the *principal* roads that bind even sparsely settled regions to other parts of the State should be given the importance of Trunkline classification. Hence, it is inevitable that in a properly designed road system in a State having the varied characteristics of Pennsylvania, there should be great variations in the intensity of use within each road classification.

Table II-4

TRAFFIC VARIATION ON TRUNKLINE AND INTERCOMMUNITY SYSTEMS[a]

(Range of 1950 A.D.T.)

Average Daily Travel (Vehicle)	*Trunkline System*		*Intercommunity System*	
	Miles	*Percent*	*Miles*	*Percent*
0 - 200	3	.0	578	5.6
200 - 400	60	.8	1979	19.1
400 - 800	359	4.6	3386	32.8
800 - 1,500	1406	18.0	2386	23.0
1,500 - 5,000	4319	55.3	1785	17.3
5,000 - 10,000	1323	16.9	192	1.8
10,000 - 20,000	304	3.9	39	.4
Over 20,000	25	.3		

[a] The Trunkline mileage in this table does not conform to Table II-1 because some miles of proposed Trunkline do not now exist and consequently carry no traffic.

Although both the Trunkline and the Intercommunity Systems have a wide range of use, the predominant A.D.T. range of one System differs greatly from the other. More than half (55 percent) of the Trunkline mileage carries an A.D.T. between 1,500 and 5,000 vehicles. These are moderate-to-heavy traffic volumes for two-lane roads. The remaining Trunkline mileage is almost equally divided between roads carrying a light two-lane traffic and roads carrying enough traffic (5,000 or more vehicles) to warrant three or more lanes.

In contrast, more than half (58 percent) of the Intercommunity Roads carry fewer than 800 vehicles per day, and four-fifths of the mileage carries fewer than 1,500 vehicles per day - still a relatively light two-lane road traffic. A very small amount (two percent of the System total) now carries enough traffic to require a multiple-lane road. It is quite evident, therefore, that from the standpoint of the service rendered, the two Systems are quite different.

Data are not available to show a breakdown of the Community Service Roads and the Local Roads into mileages carrying specified volumes of traffic. However, since the 14,000 miles of rural Community Service Roads average an A.D.T. of only 287, it is evident that thousands of miles of this System carry a daily traffic in terms of dozens rather than hundreds of vehicles. Similarly, since 59,000 miles of rural Local Roads average only 88 vehicles per day, thousands of miles obviously carry an extremely light daily traffic.

Road Classification and Road Ownership

Road classification according to use is distinct from road *ownership*. Maps 2 and 3 have shown that the Trunkline System and the Intercommunity System, though prevailingly State-owned, contain short sections owned by many different divisions of government. The same thing is true of the Community Service System and the Local Road System.

The Commission recommends some changes in road ownership, although it does not recommend a wholesale transfer of ownership at the present time. This subject is discussed and the recommendations are made in Chapters VI and VIII.

Advantages of a Sound Road Classification

From the standpoint of economical and effective administration and development of the roads in Pennsylvania, a sound classification of roads according to use is essential. This is true of the roads under jurisdiction of the Department of Highways and also of the roads under local control.

FACILITATES PROPER DESIGN STANDARDS AND ECONOMY

The Department of Highways has, and always will continue to have, the problem of making each dollar go as far as possible. It is important that no section of road be either over-developed or under-developed. If the road is brought to a higher standard than its use warrants, money has been wasted. If the road is constructed to too low a standard, it will soon become obsolete and will have to be rebuilt. Again, money will have been wasted.

An insurance against such waste is to have each mile of road classified into a System according to its intended use. Then, in the development of the road, the proper standard of design will be used.

Publicizing sound classification will help the motoring public to realize that within the broad State system there are more important and less important roads, entitled to greater or lesser amounts of expenditure according to the use made of them. The first substantial advantage in a sound classification, therefore, is that it should greatly facilitate the use of proper design standards in the planning of specific highway improvements, thus leading to substantial savings.

PERMITS A BALANCED PROGRAM OF HIGHWAY DEVELOPMENT

A second advantage is that formulation of a sound overall program of highway improvement will be helped by a good plan of classification. Needed road improvements usually outrun immediately available road revenues, making it necessary for the road administrator to choose those projects from which the greatest benefit will be derived.

Without a systematic road classification, the administrator must select between vastly dissimilar kinds of improvements. For example, he must choose between black-topping a piece of farm-to-market road in one part of the State or widening a major traffic artery from two to three lanes somewhere else. Both are needed projects, but very dissimilar. Without some guide this is a hard choice to make. With a sound road classification the first step in programming improvements is apportioning the available construction funds to the different road Systems. When it has been determined how much shall be spent on Trunkline Highways, on Intercommunity Roads, and on Community Service Roads, it then becomes much easier to make a wise choice of specific projects within each separate System, and at the same time to balance the improvement program.

Road improvement should correspond to road needs.

FACILITATES EFFECTIVE CONTROL OF COSTS

A third advantage lies in the facilitation of operating and maintenance cost control. The more logically a system of roads is classified, the more uniform should be maintenance costs on the roads comprising the system, and the easier it should be to spot those roads whose maintenance costs appear to be out of line.

Present Classification of State Highways

At present the State-owned highway mileage is grouped as follows:

State Highway System	14,609 miles
State Rural System	26,331 miles

The Commission recommends that the use of the terms "State Highway System" and "State Rural System" be discontinued and that these two present groupings of roads be replaced by the four groupings heretofore proposed. Neither the term "State Highway System" nor "State Rural System" is accurately descriptive. The State Highway System obviously does not include all State-owned mileage. Furthermore, the term State Rural System would be expected to include all State-owned roads in rural areas, and no roads except those in rural areas. This term meets neither of these requirements.

If the State-owned mileage is to continue to cover the wide range of use that it now covers, for purposes of sound administration it should be put into the four groupings heretofore proposed. Since the recommended regrouping of the roads of the State lies in the field of highway administration, the Commission's specific proposals to effectuate that regrouping are presented in Chapter VI.

The Federal-Aid Highway Systems

The Federal Government annually makes grants to the states for highway construction. The important grants are for two systems of roads: the Federal-Aid Primary System and the Federal-Aid Secondary System.

The Federal-Aid Primary System was established by the Federal Highway Act of 1921, which stipulated that the grant authorized that year should be expended on a system of rural roads to be designated by the state highway departments with the approval of the U.S. Bureau of Public Roads. It was supposed to consist of the principal trunkline highways. Originally, this system was limited to seven percent of the total highway mileage in each state. More recent legislation has extended the system into the cities and modified it slightly in other respects.

As it now exists in Pennsylvania, the Federal-Aid Primary System agrees very closely with the proposed Trunkline System. It is, however, 121 miles shorter and at a few points the two systems do not correspond. These failures to correspond are generally due to developments which have occurred since establishment of the Federal-Aid Primary System and which have changed the uses and relative importance of occasional road sections.

The Commission believes it desirable that the Trunkline System, if established and designated as proposed, should coincide even more closely with the Federal-Aid Primary System, and recommends that negotiations should be initiated by the Secretary of Highways with the Public Roads Administration to accomplish this.

The Federal-Aid Highway Act of 1944 provided for a Federal-Aid Secondary System, to be designated by the state highway departments (subject to Federal approval) and authorized the expenditure of Federal funds on this system. By law, this system was to consist of the principal farm-to-market roads, and is restricted to areas outside of incorporated places having 5,000 population or more.

In Pennsylvania, this system consists of 10,677 miles of road - 312 miles more than the Intercommunity Road System. In general, the Federal-Aid Secondary System and the Intercommunity System comprise the same mileage. The remaining mileages, however, would be quite difficult to reconcile, because of the widely different definitions on which the two systems rest and the limitation of the Federal-Aid Secondary System to rural areas.

The Commission sees no great advantage in the complete coincidence of the Federal-Aid Secondary System and the Intercommunity Road System and recommends that no effort in this direction be made. An additional consideration is that Federal law permits a considerable future enlargement of the Federal-Aid Secondary System, should the Secretary of Highways propose it, whereas no such enlargement of the Intercommunity System seems desirable.

General Conclusions

The Commission's recommendations for a long-range improvement program have been based upon this proposed plan for road classification.

Road classification presents no substantial difficulties, and offers substantial rewards. While the greatest gains will result from a reclassification of the roads comprising the proposed Trunkline, Intercommunity, and Community Service Systems, there are important reasons for applying the same principles to roads now under local control, as is discussed later in this report.

It is worth repeating that establishing a sound road classification plan in Pennsylvania does not necessitate radical changes in road ownership. Most of it can be accomplished by an authorization to the Secretary of Highways to reclassify the roads now under his control.

RECOMMENDATION

The Commission recommends that the Department of Highways be required to classify all roads and streets throughout the State into four major classes: Trunkline Highways, Intercommunity Roads, Community Service Roads and Local Roads, as outlined in this report.

On roads and streets now part of the State Highway Systems, this should be done by the Department itself. On roads and streets now locally owned, it should be done by the Department in consultation with appropriate local authorities, with opportunity for hearings where necessary.

The classification should be reviewed periodically and changes made which are necessitated by later developments.

III

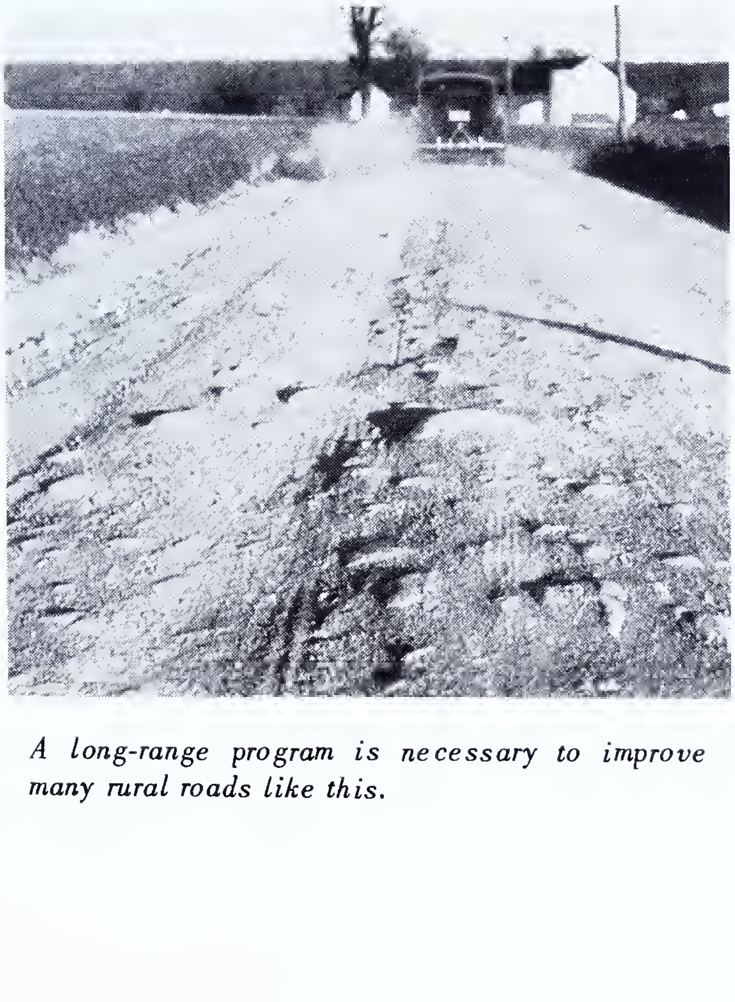
AN INVENTORY OF ROAD NEEDS

Why the Inventory Was Made

Pennsylvania's road network is constantly wearing out.

More than that, as the volume of traffic using the roads has become greater and greater, traffic congestion has become worse and worse. Finally, as vehicles have become larger and the proportion of large vehicles has become greater, congestion has been compounded.

The roadbeds of most Pennsylvania roads are over 20 years old. Many are much older. In 20 years traffic in the State has more than doubled and on many individual roads the increase has been much greater. Roads built 20 years ago according to standards of width and alignment suitable for, say 2,000 vehicles a day, are wholly inadequate for a present traffic of 6,000 vehicles. They will be even more inadequate for the greater traffic volumes which the future will bring. The road plant must be expanded to take care of the increased traffic.



A long-range program is necessary to improve many rural roads like this.

Twenty years ago, there were registered in the State 34,513 trucks or truck combinations exceeding 15,000 lbs. in registered gross weight. Today there are 98,092. Tomorrow there will be even more. Road designs of 1930 could not allow for this unforeseeable road condition of 1950 and for the more aggravated conditions to be anticipated in 1960 and 1970. The State is confronted with a large job of replacing inadequate roads which are too narrow and too crooked with roads of more modern design and greater traffic capacity.

Furthermore, under modern traffic conditions, no pavement can be expected to last more than 30 years, and the average life expectancy of the heaviest type combination concrete and bituminous pavement is only a little more than 20 years. This necessitates constant repair and replacement.

Consequently, one of the Highway Planning Commission's principal responsibilities was to determine the expenditure required to meet this continual need for road expansion and road replacement.

This is a large order. It involves all roads - not merely the main Trunklines, but also the lesser roads leading to individual farms and the crossroad stores and schoolhouses. Also, it must include bridges as well as roads - for a road, of course, can serve no more traffic than its bridges can carry.

The Basic Inventory Plan

To determine the highway expenditure needed, the Commission felt that there was only one sound way to proceed:

1. To select a period of time for carrying out the road and bridge improvements deemed necessary;
2. To determine the road and bridge facilities necessary and financially feasible at the end of that period; and

3. To determine the adequacy (or conversely, the deficiencies) of present roads and bridges, making the allowance for their further deterioration during the selected period.

TWELVE-YEAR PERIOD SELECTED

The Commission decided upon 12 years as the period for a proposed construction program. That is, its inventory has been aimed at determining how much expenditure would be required to create, by 1962, a road plant for the State which will be adequate to accommodate the traffic expected at that time. Twelve years was considered to be the minimum period of time in which it was feasible to correct the accumulated deficiencies of the State's highway facilities within the State's financial capacity, keeping in mind other essential governmental activities.

TRUNKLINE HIGHWAY AND INTERCOMMUNITY ROAD INVENTORIES

The Commission made a complete field inventory of the needs of the Trunkline and Intercommunity Systems in rural and urban areas, except that the mileage of the Pennsylvania Turnpike was not included. (See Maps 2 and 3.) This was an actual inspection, made by experienced highway engineers, of every mile of the 18,000 miles of those principal roads and streets. These two road Systems, as pointed out in Chapter II, serve more than half (56 percent) of Pennsylvania's highway traffic and form the backbone of both the rural and urban highway transportation system. It was not necessary to include the Turnpike in the Trunkline System inventory because no Turnpike costs need be financed from the ordinary sources of highway revenue - all Turnpike costs being met by tolls charged for use of the Turnpike. As noted in the previous chapter, however, the Turnpike is classed as part of the Trunkline System and is so shown on the maps in this report.

This inventory of the needs of the Trunkline System has also included provision for, and estimates of the cost of *additional* traffic facilities required for the safe and efficient movement of present or prospective volumes of traffic.

Additional mileage requirements. The rural portions of the Trunkline and Intercommunity Systems require little *additional* mileage. The population centers that need to be connected by these Systems are, in general, already connected. Also, the connecting roads occupy the most favorable valleys or other locations. The improvement of the rural Trunkline Highways largely involves the betterment of these existing facilities. Oftentimes this requires some straightening of crooked roads or an increase in their traffic capacities, accomplished by adding one or more lanes or by replacing an outworn two-lane road with a rebuilt road having more lanes.

In many cities, including all of the larger ones, however, betterment of existing facilities is not enough. As in rural areas, elimination of existing defects is required. In addition (and this is much the more important division of the urban improvement program) wholly new major facilities of large traffic capacity and bold, modern design are needed to supplement existing roads and streets. They must be built to take over a large part of the traffic now causing such serious congestion in and approaching the central business areas of many cities. The major part of the *urban* Trunkline inventory, therefore, has been an inventory of the need for and cost of new express-

This tunnel now under construction illustrates one type of major improvement necessary to combat traffic congestion in large cities. The high costs of such projects are justified by the great volumes of traffic they serve.

ways. Some of these additional streets would give access to the business areas; others would by-pass a portion of the traffic around such areas.

Bridge needs. The Trunkline System and Intercommunity System inventories also have included a determination of the inadequacies of existing bridges and an estimate of the cost of correcting them. In addition, the costs of the new bridges necessitated by changes in road locations have been estimated.

COMMUNITY SERVICE ROAD AND URBAN LOCAL ROADS INVENTORY

The Commission employed a different method in making its inventory of improvements needed on the Community Service Roads and on the streets of the urban part of the Local Road System. The Commission decided that it was not necessary to study these roads as intensively as the Trunkline Highways and Intercommunity Roads for the following reasons:

1. For the amounts of the traffic using them, the Community Service Roads are the most nearly adequate of all the roads in the State. They are not overburdened with traffic and, in large part, they already have been brought to as high a state of development as their use requires.
2. Much the same is true of the Local Road System's urban streets which are municipal rather than State responsibilities and, therefore, do not too greatly affect the amount of required State expenditure.
3. All members of the Commission's field staff having had years of experience in the district offices of the Department of Highways have a detailed familiarity with the roads and streets in their territories.

Thus the Commission decided that it was unnecessary to make a detailed field inventory of these classes of roads - the combined length of which is 22,000 miles. In view of their prevailingly good condition, it was felt that reliance should be placed mainly on the general knowledge of the System possessed by the Commission's engineering staff.

Inventory of the bridges on the Community Service System, however, was made along the same lines as that on the more general Systems.

RURAL LOCAL ROAD INVENTORY

A field inventory of the rural part of the Local Road System (59,000 miles serving seven percent of the State's traffic) was made by thorough analysis of a carefully selected representative sample of the entire mileage.

Eighteen counties in all parts of the State were selected as being representative of the entire rural area of the State. In each of these counties three second-class townships were selected. One was representative of the more prosperous areas of the county, one representative of average conditions, and the third, sub-average conditions. Engineers traveled and carefully inventoried each mile of road in the selected townships from the standpoints of its condition and its use.

The distinguishing characteristic of the Local Roads is that they are of primary interest to the families living on them. Even with this characteristic, however, the many miles of rural Local Roads cover a wide range of use.

At one extreme is the road running to a meadow or wood lot, and perhaps not traveled by a single vehicle for days at a time. At the other extreme are roads that are in daily use, for the collection of milk from adjoining farms, taking children to school, delivering mail and other similar purposes. These are aptly described as "Local Service Roads." In the performance of these services they are used by persons not living on the roads, but the services are performed primarily for the benefit of those who do live on the roads. The lesser used category may be called "Property Access Roads," since almost their sole function is to give access to property, and they are used almost entirely by the owners of abutting property.

In making this inventory for each section of road, the engineers reported whether its function established it as a "Local Service" or a "Property Access" road. They also reported the approximate amount of traffic using each road section, the length of the road section, and its type, i.e., earth, stabiliz-

A Property Access type of rural road is shown here. More important rural roads are classified as Local Service Roads.

ed, bituminous-treated, or a higher-type of surfacing. They then determined whether the section was satisfactory, and if not, an improvement was recommended.

The field reports also included data on the type and condition of all bridges on the section, and recommendations for repair or replacement. These bridge findings were available as a check on data described in the next paragraph.

Rural Local Road System bridges. The Department of Highways has recently compiled a set of reports on the condition of second-class township bridges, and it has reports on all posted bridges on the State Rural System. Since more than 90 percent of the rural Local Road mileage is owned by the second-class townships or forms part of the State Rural System mileage, these data of the Department of Highways formed the principal basis for the bridge inventory on the rural Local Road System.

A record of all county-owned bridges was obtained by the engineering staff of the Commission, with the help of the district bridge engineers in the Department of Highways. This record formed the basis of the inventory of county bridges.

Department of Highways personnel also assisted the Commission in making a field review of the 600 bridges on the 4,686 miles of road in the 905 boroughs considered "rural" - boroughs with less than 10,000 population.

Method of the Trunkline Highway and Intercommunity Road Inventories

Of the State funds which the Commission recommends should be spent for road and bridge improvements in the 12-year period beginning with 1950, more than three-fourths are proposed for expenditure on the Trunkline and Intercommunity Systems. In view of this, the Commission believes that a detailed explanation of the inventory procedure used on these two road Systems will be of general interest.

"NEW CONSTRUCTION" STANDARDS

The Department of Highways has detailed standards for new road construction. These form the basis for the design of all new construction projects. (The term "new" as used here includes roads that are completely rebuilt, whether on the old or on a relocated right-of-way, as well as roads that had no prior existence.)

If the entire Trunkline and Intercommunity Systems could be brought to these standards, Pennsylvania would have incomparably the best highway system of any like area in the world. But to transform our roads to these standard in a brief span of years would crush the State under a burden of taxes or debt. Starting with road conditions as they are now, we cannot afford a Utopian road system within any brief period.

The Commission is in accord with the Department's new construction standards[1] and has based its cost estimates of "new construction" on these standards. (These standards are set forth in Appendix III.)

Costliness of new construction. The Commission, however, does not propose that every mile of road not now meeting these standards should be scheduled for improvements within 12 years. Nor does the Commission recommend that all roads which it proposes for improvement within 12 years be brought up to the new construction standards within this period. To accomplish such a program would necessitate at least a doubling and perhaps a tripling of present highway revenues. Moreover, it would result in the

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[1] Except in regard to right-of-way widths, which are unwisely narrow. See the recommendations in Chapter IV.

New construction, such as this four-lane highway, has been proposed by the Commission when justified by the service and use which a road provides.

tearing up of hundreds of miles of roads which, though not ideal, are adequately usable.

Salvaging roads. Therefore, in proposing a program of improvements of these two main road Systems, the Commission has endeavored to keep always in mind two principles:

1. To salvage as much real value out of each existing road as can be salvaged;
2. To avoid spending an inordinate amount of money on the limited reconstruction of any road which, after the expenditure, will still be unsatisfactory for the traffic using it.

"TOLERABLE" STANDARDS

Consistent with these principles, the Commission has formulated a set of standards lower than the new construction standards, but nevertheless, commensurate with a temporarily acceptable road - a road that can be used for another 12 years with reasonable safety and efficiency. These the Commission has termed "tolerable" standards. (See Appendix IV.)

These standards of road surface, pavement width, shoulder width, curvature, sight distance and grade are not equal to those that would be incorporated into the design of a road being newly built. Nevertheless, a road possessing them will supply reasonably safe and reasonably efficient transportation for a number of years. It will do its part in supporting the State's economy until the satisfaction of more urgent needs permits the road section to be brought to new construction standards.

As an example, for a road carrying 13,000 or more vehicles per day, the new construction standards require four 12-foot lanes, divided, with 10-foot shoulders, and require the pavement surface to be visible 475 feet ahead of a driver at all points. The tolerable standards, however, require only four 10-foot lanes, divided, with five-foot shoulders, and a clear sight-distance of 300 feet at all points .

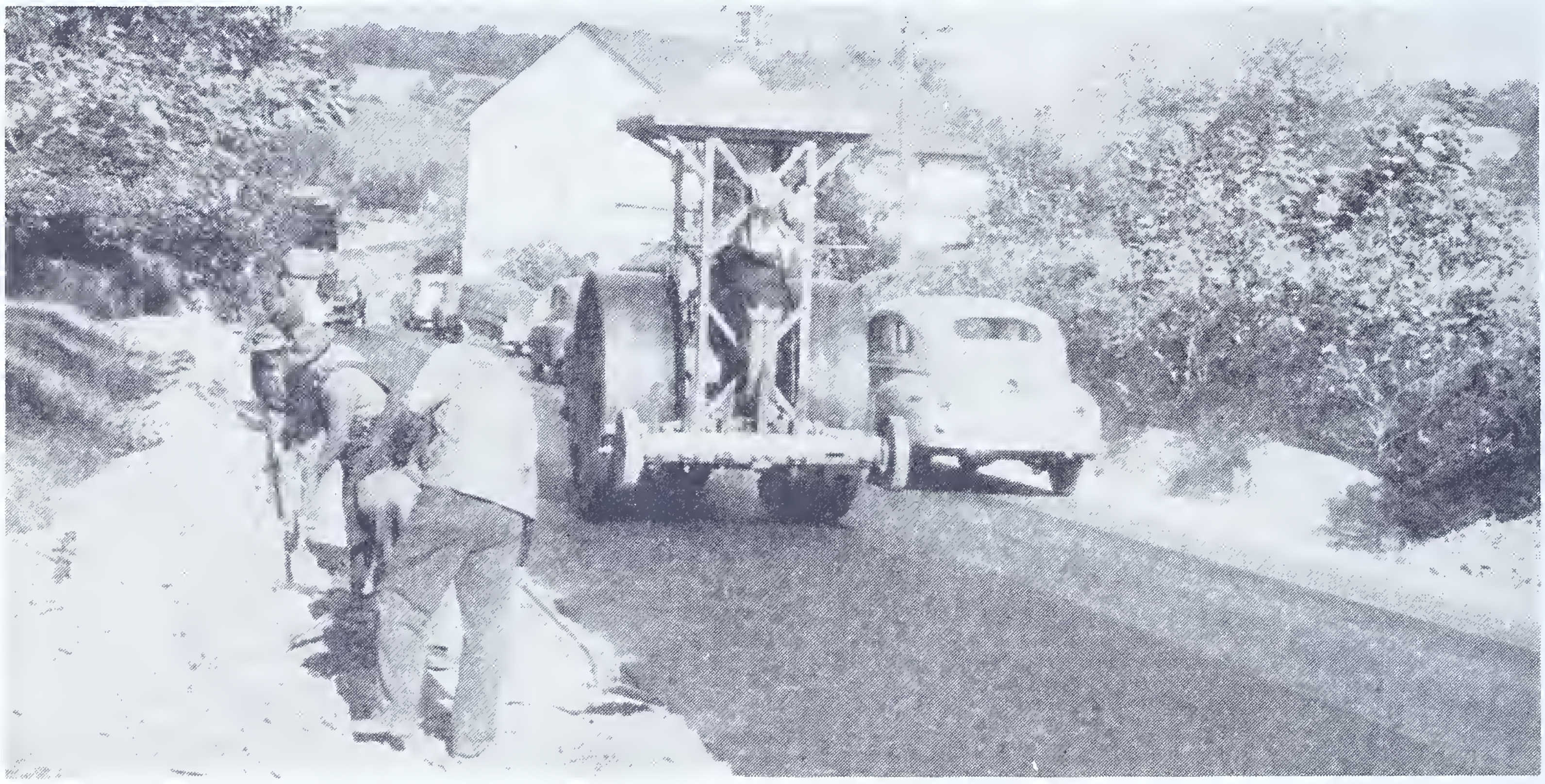
In the process of inventory, each road was first divided by the field engineer into sections of uniform condition and use. These sections varied considerably in length, averaging a little over two miles.

SATISFACTORY SECTIONS

Each road section was then measured against the tolerable standards. If it met them it was classified as satisfactory for the 12-year period and no further inventory of it was made.

LIMITED RECONSTRUCTION

If the section failed to meet the tolerable standards the engineer made a careful analysis of its deficiencies. If the quality of the road was found to be such that through a small or moderate expenditure it could be brought up to the tolerable standards, the engineer proposed improvements (such as resurfacing, pavement widening, improved drainage, etc.) to do so, and estimated the necessary expenditure for the improvement of the section accordingly. This was termed "limited reconstruction." In this way existing road values were salvaged as fully as possible.



An illustration of limited reconstruction.

NEW CONSTRUCTION

On the other hand, some road sections were substantially below the tolerable standards in many respects, especially crooked alignment and heavy grades. Even if the pavement were repaired and made adequately wide and smooth, the road still would be unsatisfactory to use. In such cases money spent on repairs to pavement and base, or for the installation of drainage or the building of better shoulders would be money wasted. Consequently, a completely rebuilt road would be recommended. Since this road would be built as a permanent part of the road plant, the new construction standards would be used.

ADDITIONAL LANE CONSTRUCTION

A fourth condition involved additional lane construction on certain roads. These roads have good line and grade and have, or with small expenditure could be made to have, practically new construction characteristics for a limited volume of traffic. The traffic volume on these roads, however, was found to exceed their capacity. In such cases, the addition of one or two lanes to increase traffic capacity, with possibly some surface improvement of the existing lanes, would produce a road meeting the new construction standards. This type of improvement, called "additional lane construction," was then recommended.

SUMMARY

Every section of road in the Trunkline Highway and Intercommunity Road Systems was assigned to one of the four classes:

1. Satisfactory (according to tolerable standards or better);
2. Limited reconstruction;
3. New Construction; or
4. Additional lane construction.

ROAD STANDARDS VS. TRAFFIC VOLUMES

Roads serve traffic. That is their primary and essential purpose.

A road used by 200 vehicles a day does not require the same pavement and shoulder widths, nor the same sight distance and grades, as a road carrying 2,000 vehicles a day. In like manner, the 2,000-vehicle per day road does not require the same characteristics as a 20,000-vehicle per day road. Both the standards for new construction and the standards for tolerable road condition, therefore, take the volume of traffic into account. Separate standards are set up for roads carrying 200 vehicles per day or less, from 200 to 400 vehicles, from 400 to 800, from 800 to 1,500, from 1,500 to 5,000, from 5,000 to 10,000, from 10,000 to 20,000 and for volumes in excess of 20,000.

For example, the new construction standards for a road carrying between 400 and 800 vehicles per day call for a pavement of two nine-foot lanes, with five-foot shoulders, and a maximum grade of seven percent (that is a rise or fall of seven feet in 100 feet). But for a road carrying 13,000 or more vehicles per day, the standards call for a pavement of four 12-foot lanes separated by a divisor, with 10-foot shoulders, and a maximum grade of five percent.

Future traffic. One other fact should be brought out in connection with the designing of roads for specified traffic volumes. Highway traffic in Pennsylvania has increased continually for many years. Extensive studies by the Commission staff afford a basis for forecasting a future rate of increase which, though declining, gives promise of being very considerable for years to come. It would be folly to build a road to new construction standards and build it to move only the volume of traffic using it in 1950. Therefore, in proposing road sections for new construction or additional lane construction, the traffic volume on which the design characteristics of the road were based was the estimated 1980 traffic.

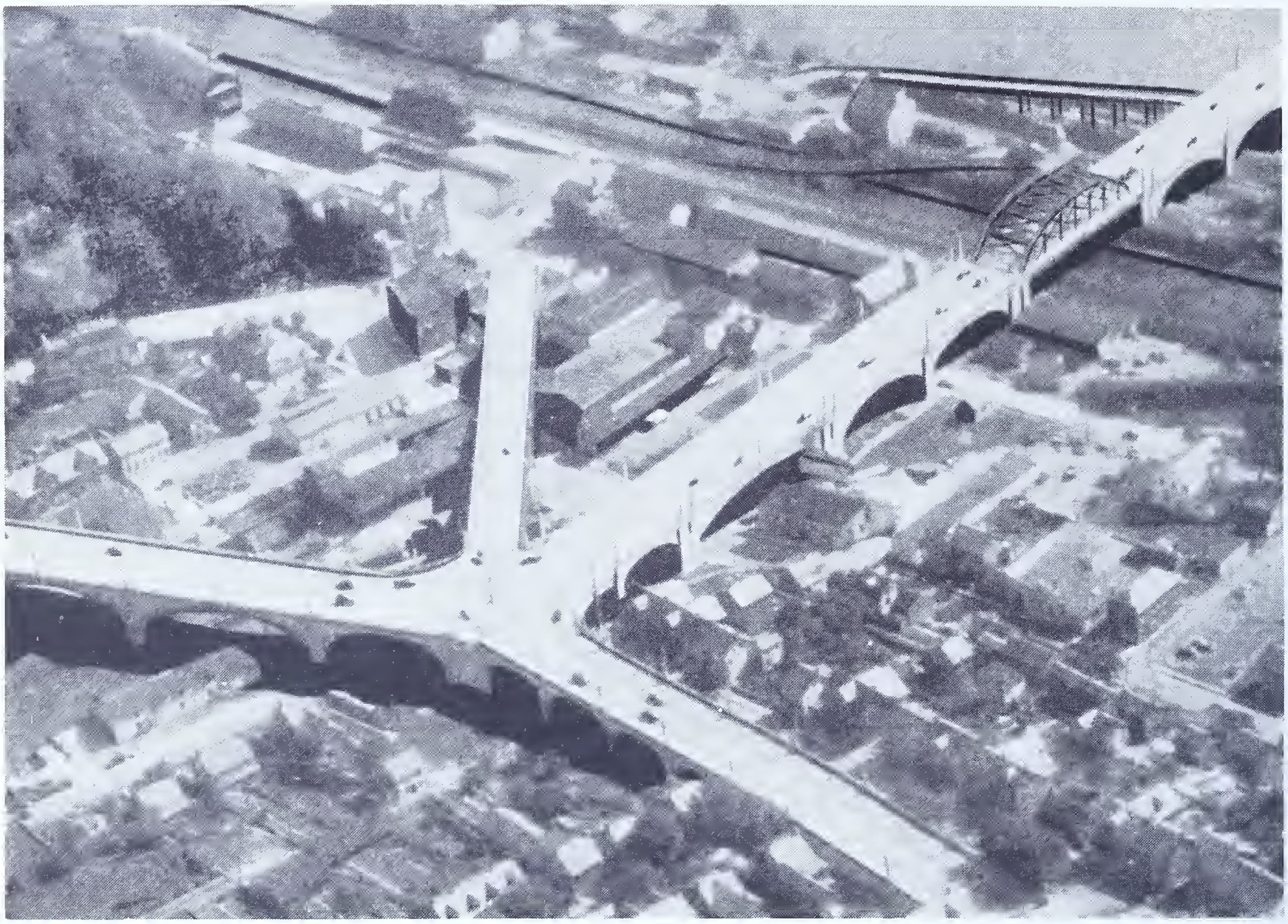
Where merely limited reconstruction was recommended, there was no need of attempting to look so far into the future, and the design was based on the probable traffic in 1962.

Along with the tolerable and new construction standards, and a manual of instructions covering their use, the field engineers were furnished a report form on which the location, deficiencies, proposed improvement and estimated cost of the improvement were recorded. Separate reports were made on 8,200 individual road sections. These reports were sent to the Harrisburg office of the Commission where they were checked for completeness and for the consistency of their sections on deficiencies, traffic volume, improvement recommendations and cost estimates. After being checked, they were further processed by tabulating machines to yield the information presented in Chapters IV and V.

Major Urban Highway Improvements

Traffic congestion on urban streets has led highway engineers and planners to propose bold and far-reaching solutions. The construction of major urban expressways with elevated or depressed roads, four or more lanes, access limited to selected points and traffic interchanges at these points - designed to allow any vehicle to leave or enter an intersecting road without crossing the path of another vehicle, are revolutionary in facilitating the efficient movement of of large traffic volumes.

Pennsylvania has lagged behind some other states in respect to such facilities. It is far behind public demand for them as evidenced at all public hearings held by the Commission. The major urban projects included in the 12-year program of the Commission could not, of necessity, include all the projects proposed by local groups. Many of the local plans are for periods longer than 12 years or have been developed without adequate balancing of costs and benefits, and in some cases with little or no con-



Elevated highways and bridges carry through-traffic over rivers and crowded industrial areas, and help to keep city streets free for local traffic.

sideration of costs.

The Commission's staff, however, studied all the suggestions made by local groups and obtained substantial assistance from many of them. The Department of Highways has also given extensive thought to many of these problems, and the Commission staff consulted freely with appropriate Department personnel, as well as with local officials and citizens. This study and these conferences resulted in field recommendations for many substantial urban improvements. These were reviewed by the Harrisburg staff and resulted in recommendation by the Commission of a large mileage of access and by-pass roads and streets of the very greatest importance to highway travel in the State.

In general, the construction of these projects will not retire existing roads and streets from use. It will lighten the traffic on them and change its character. Whereas they previously were the extensions of the Trunkline Highways from rural into urban areas, they will become streets primarily for local use. They will, however, continue in use, and usually in busy use. The new urban facilities are not replacements but additions.

Method of Trunkline Highway and Intercommunity Road System Bridge Inventories

Bridges on these two road Systems are generally in a good state of repair. Where they are inadequate, it is most often because of some defect so inherent in the structure that it can be corrected only by replacement. The principal causes of inadequacy of these bridges are:

1. Insufficient strength.

2. Insufficient vertical clearance.
3. Insufficient roadway width.
4. Dangerous approach alignment.
5. Unsuitable location.

All State-owned bridges that cannot safely carry a 15-ton vehicle, and bridges without a clear height of 14 feet from the roadway surface, are posted with signs which state the actual weight limit or height limit of the bridge. These are known as posted bridges. Every State-posted bridge is recommended for replacement before 1962, except in a few cases where the limitation on use of the structure can be eliminated by some means less drastic than replacement.

Pennsylvania still maintains many covered bridges, most of which are posted for both load and clearance and are more picturesque than practical.

In deciding on the need for such replacements and estimating their costs, the idea of tolerable and new construction standards for roads (as heretofore explained) was used. For instance, the new construction bridge standards of the Department of Highways specify enough strength to carry a vehicle and trailer weighing respectively 20 and 16 tons. In every case where the inventory has led to a recommendation for a *new* bridge, the cost estimate has been based on this strength. The Commission, however, has not recommended the replacement of every bridge not safe for a 20-ton load, but only those unsafe for a 15-ton load - 15 tons being considered the tolerable strength standard. This is also true for other deficiencies. Since the Department of Highways maintains complete information about posted bridges on the roads owned by the State, a field inventory of bridges deficient in strength or vertical clearance was not necessary.

Inadequacy of roadway *width* on bridges was determined by a field inventory. As the field engineer proceeded with the inventory of a road, he measured the clear roadway width of each bridge. If it was inadequate (for example, less than the width of the pavement on the bridge approaches) he reported the bridge roadway width, the pavement width and other data needed to estimate the cost of either replacing or widening the bridge. The bridge section of the Commission's staff then made the final decision whether to accept the bridge as tolerable or to recommend its improvement. In the latter case, decision was also made as to whether widening the existing structure or replacing it with a new structure would be more economical in the long run. In either of these cases, an effort was made to provide a roadway width equal to the new construction standard, because of the extreme danger of narrow bridges.

Bridges to be considered for replacement because of dangerous approaches were also identified and reported by the field engineers. In this case, too, the bridge section of the Commission staff made the final decision as to replacement and, from field data supplied, estimated the cost.

The other Trunkline System and Intercommunity System bridges which are needed are those on sections of road to be built on new locations. Where existing roads are recommended for relocation, the field inventory report for the road section contains the essential data for estimating costs of any bridges required. Costs were estimated by the Commission's bridge estimating section.

Where new roads have been recommended, as described in Chapter V under "Major Urban Improvements," all necessary bridges - both those for carrying traffic over streams and those for the separation of grades - were considered as part of the project and their costs estimated.

How the Inventory Works on a Specific Road-U. S. Route 11

The inventory process has been described as one in which all portions of the Trunkline Highway

System and all portions of the Intercommunity Road System were broken down into short sections and each section studied individually, with resulting recommendations for any improvement that might be needed. At first thought, it may appear that this process must result in a failure to develop continuity in these road Systems - that it must result in a patchwork of little separate pieces of roads not fitting together into a consistent and harmonious whole.

Reflection will show that this is not the case. If each short section of road is examined critically from the standpoint of its future use, and is given characteristics suitable for that use, these individual sections will add up to a traffic route the several parts of which will bear a proper relationship to one another and each individual part will bear a proper relationship to the whole.

In other words, there will be developed a traffic route which not only is logical and consistent throughout its different parts, but adequately performs its share of the entire road function. By this process a consistent development has been worked out for U.S. 1, U.S. 6, U.S. 22, Pa. 74 and all the other routes in the State both Trunkline or Intercommunity.

To give a specific illustration of how the inventory process was applied to an entire route, the proposed development of U.S. 11 is described in brief detail. This route is a good typical route for illustrative purposes. It extends completely across the State. It is neither the most important nor the least important traffic route in the Trunkline System. It carries a varying volume of traffic, from comparatively light to fairly heavy, justifying two, three and four-lane sections. At one point or another along its length, it has practically every type of deficiency to be found on the Trunkline mileage. It also contains well designed, recently constructed sections that should be satisfactory for many years.

LOCATION OF U. S. 11

The small inset map on page 34 shows the general location of U.S. 11 in the State, and the alignment layout, Graph 1, shown across the top of Map 4 shows the location in more detail. Entering the State from Maryland, just below Greencastle, the road extends northeasterly through Chambersburg. Shippensburg and Carlisle, to the west bank of the Susquehanna opposite Harrisburg. It then extends up the Susquehanna, crossing the West Branch at Northumberland and leaves the Susquehanna Valley at Pittston, continuing northeasterly to Scranton, then turning north to enter New York State below Binghamton. Its length is approximately 250 miles.

Graph 2 is a straight-line diagram of the road, showing the road pulled out into a straight line. The cities and boroughs through which the route passes are shown their true road-distances apart, and principal intersecting roads are shown. This diagram also shows the mileage of U.S. 11 in each of the counties it traverses.

DEFICIENCIES OF U.S. 11

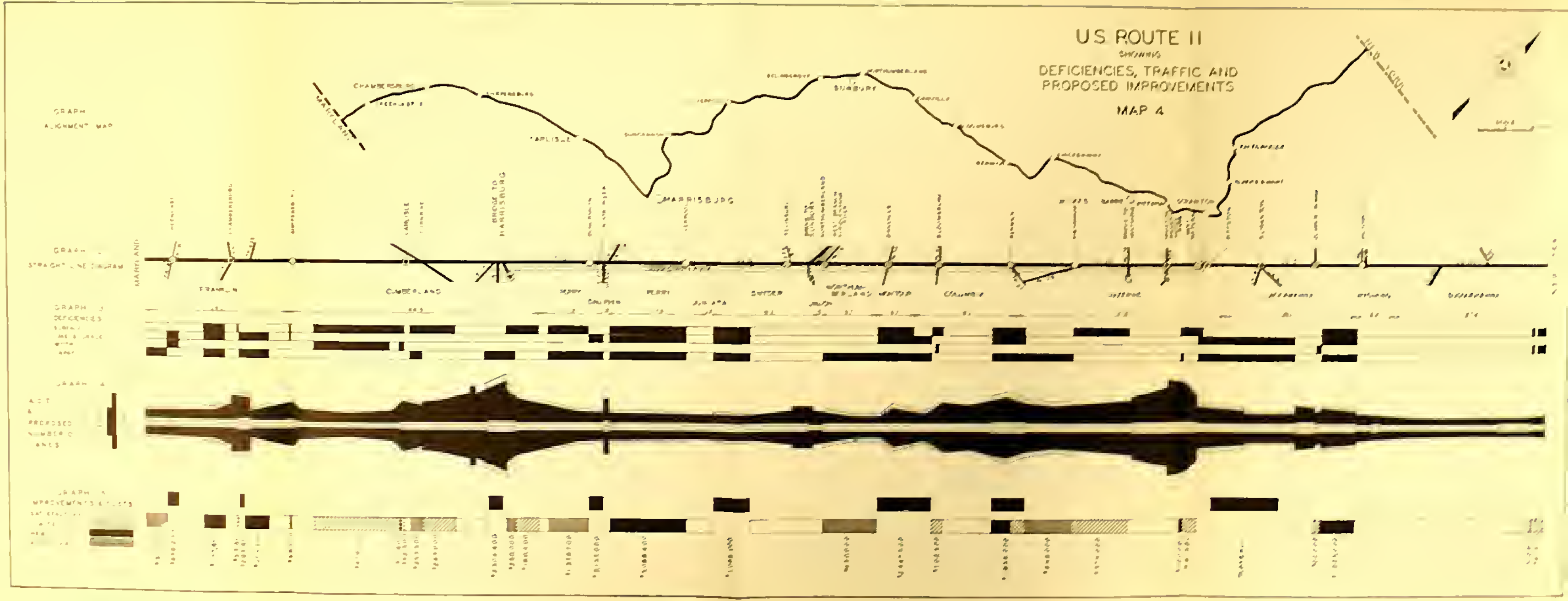
For the inventory of U.S. 11, the road was first broken down into sections as heretofore described, and the deficiencies, if any, of each section were noted. These deficiencies, grouped according to their type, are shown in Graph 3 below the straight-line diagram. They are to scale. Consequently, a point on the deficiency graph represents the road condition of the point on the straight-line diagram that is directly above. The length of the deficiency bar shows the number of miles of road possessing that deficiency. Where no deficiency is shown, the section is satisfactory.

"Surface" deficiencies include a rough pavement, too high a crown, incorrectly banked curves, etc.

Sections with defective "line and grade" either have restricted sight distances due to sharp vertical or horizontal curves, or have unsatisfactorily heavy grades - or they may have both defects.

"Deficient width" means that each individual lane of the road is too narrow. For example, the tolerable width requirement for a two-lane road carrying 4,000 vehicles a day is 22 feet - two 11-foot lanes. If a road section with this traffic has lanes less than 11 feet wide, it is listed as being deficient in width.

"Capacity" refers primarily to the number of lanes. A two-lane road with a 24-foot pavement is


U.S. ROUTE 11
SHOWING
DEFICIENCIES, TRAFFIC AND PROPOSED IMPROVEMENTS
MAP 4
GRAPH 1
ALIGNMENT MAP
MARYLAND
CHAMBERSBURG
SHIPPENSBURG
CARLISLE
HARRISBURG
SUNBURY
BRIDGE TO HARRISBURG
GRAPH 2
STRAIGHT LINE DIAGRAM
FRANKLIN
CUMBERLAND
GRAPH 3
DEFICIENCIES
GRAPH 4
GRAPH 5

listed as deficient in capacity, if it carries 6,000 vehicles per day. This is not because 12 feet is insufficient width for a lane, but because three lanes are required for the satisfactory movement of 6,000 vehicles per day. However, for any road section where the number of lanes is insufficient, capacity includes width as well. That is, if a road carries 6,000 vehicles per day and has only two 10-foot lanes, its deficiency in respect both to number of lanes and width of lanes would be covered by showing the one deficiency, i.e. "capacity." Such a road would be scheduled for additional lane construction. Besides the addition of a new 11-foot lane, this would include the widening of the existing lanes to the new construction standard of 11 feet. Consequently, where a road is listed as deficient in capacity, it definitely requires an additional lane, and its existing lanes *may or may not* require widening.

TRAFFIC VOLUME

Graph 4, also on Map 4, gives a bird's eye view of traffic on U.S. 11. It shows the estimated average daily traffic on each section of the road, and the number of lanes the Commission recommends the road should have. The width of the solid black line shows estimated average daily 1962 traffic throughout the length of the road. For satisfactory sections and for sections to be improved with limited reconstruction only, this is the only traffic projection made. However, where the "permanent" improvements (new construction or additional lane construction) have been proposed, a traffic projection to 1980 is made, to assure that the improvement will continue to have adequate capacity. The maximum 1962 traffic anticipated for any point on U.S. 11 is 15,000 vehicles per day on a short section of the road opposite Wilkes-Barre. Since the existing four-lane road at this location is found adequate, no traffic projection beyond 1962 has been made. The heaviest 1980 traffic estimated for any part of the route is 20,000 vehicles per day on a section across the river from Harrisburg. It is proposed that this be rebuilt as a four-lane road on new location.

IMPROVEMENTS PROPOSED; COSTS

Graph 5, Map 4, shows, by symbol, the type of improvement proposed for sections of the road and the cost of each improvement. If new construction of the section is to be on a new location, the symbol for the relocated section is raised above the line. If the relocation results in a shortening of the route, as it does in the vicinity of Scranton, the relative lengths of the existing and the new location can be seen. At Berwick, the proposal is that the existing two-lane U.S. 11 be used for traffic in the easterly direction and a parallel route also of two lanes, be provided for westbound traffic. A part of the existing route through Berwick needs to be completely rebuilt; for another part, limited reconstruction will do. For westbound U.S. 11, complete reconstruction of an existing borough street is required.

Simultaneous study of the several graphs for any section of U.S. 11 will show that the type of improvement and the number of lanes proposed for each individual section are consistent with the deficiencies of that section and the A.D.T. on it. Consideration of successive sections will show how each section builds up to form a consistent design for U.S. 11 across the State.

For example, starting at the Maryland State line the first section in Franklin County has good surface, line and grade, but by 1962 it is expected to carry a traffic exceeding 5,000 vehicles per day. Consequently, the two existing lanes will lack capacity, and construction of an additional lane is recommended. The resulting three-lane road will be adequate for the 6,000 A.D.T. estimated for 1980.

The next road section, extending through Greencastle, is already a three-lane road. However, it has both a poor surface and unsatisfactory alignment. New construction on a new location by-passing the borough is required. This three-lane by-pass is expected to have adequate traffic capacity past 1980.

The next section has no defects and the three lanes now in existence have ample traffic capacity. This section is satisfactory. Beyond it, however, a two-lane section is encountered. This section has either poor alignment or poor grades or both, a defective surface and an inadequate capacity due to too few lanes (and possibly to inadequate lane widths as well). Consequently, it needs to be completely rebuilt, although it does not require any extensive relocation.

When rebuilt with three well designed lanes, it will have more than adequate capacity for the 8,000 A.D.T. expected in 1980.

The next section, which extends through the center of Chambersburg is satisfactory for 12 years, though it will be approaching congestion by 1962. It is followed by a short section that needs resurfacing, but otherwise is acceptable. Then commencing with a road junction near the northeast border of the borough where an added amount of traffic comes into the route, bad conditions of line or grade or both, and deficient capacity are encountered. These would be corrected by replacing the three existing lanes with four new lanes until the traffic load is materially reduced at the intersection of Pa. 433. From this point, new construction of three lanes is continued until the end of the defective section. A satisfactory section then extends for several miles until another short three-lane section of defective surface, line and grade is encountered. This is corrected by new construction extending to the Cumberland County line.

In similar fashion the relationship between deficiencies, traffic volumes and improvements can be traced across the State.

The section of U.S. 11 presenting the most complex problems and requiring the most intensive study is the mileage from the vicinity of Wilkes-Barre to the vicinity of Scranton. A detailed explanation of the proposals made for this section of the road, and of why they are made, is given in Chapter V under the section on "Major Urban Improvements."

In summary, the recommendations for U.S. 11 include:

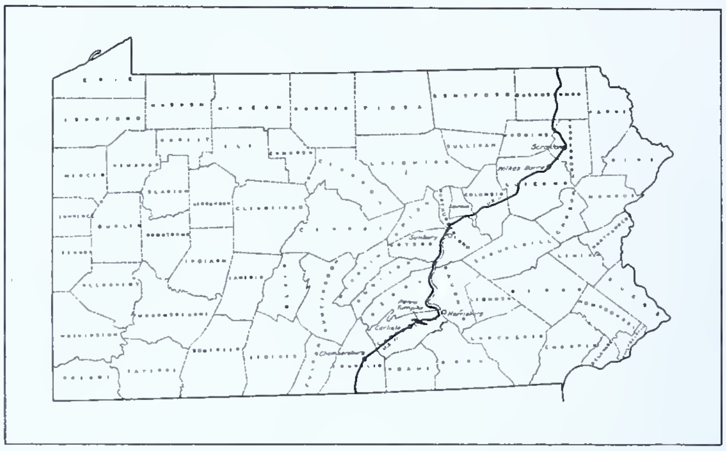
Limited reconstruction of 46 miles for $1,736,900 or $38,000 per mile;

New construction (actually new road, or the complete rebuilding of an existing section) of 74 miles for $20,331,600 or $275,000 per mile;

Additional lane construction of 32.5 miles for $4,135,300 or $125,000 per mile; and

The remaining 94 miles were found to be satisfactory for another 12 years.

Of the new construction, 34 miles would be on the existing right-of-way; 43 miles would be relocated. These relocations would shorten the route by five miles.



THE RESULT

With the completion of these improvements, there would exist a road made consistent throughout its length with the traffic using it. It would be composed of 50 miles of two-lane road, 176 miles of three-lane and 23 miles of four-lane divided road. It would avoid entanglement with, while giving ready access to, the streets of Harrisburg, Wilkes-Barre and Scranton. Throughout its length it would be well surfaced, and would be free from any unreasonable curvature and grade, or any unreasonably restricted sight distance. Sections with a length of 46 miles (the limited reconstruction sections) would represent a salvage operation and the Commonwealth would be faced with a necessity for their further improvement not long after 1961. However, 107 miles (the new construction and additional lane construction sections) should be good for many years. Much of the 94 miles of satisfactory sections, having been recently constructed, should also serve with little additional outlay for a long time.

As illustrated by U.S. 11, this was the inventory process used by the Commission:

To break a route down into short sections;

To examine critically the deficiencies and use of each section; and

In the light of this examination, to decide what, if any, improvement should be made to each section and the cost of making it.

The procedure used on U.S. 11 was applied to the entire mileage of the Trunkline Highway and Intercommunity Road Systems, except the mileage of the Pennsylvania Turnpike and its extensions as heretofore noted.

IV

FINDINGS OF THE INVENTORY

Trunkline Highway System

The Trunkline System inventory had five objectives:

1. To determine, the present condition and and use of each part of the System; in order
2. To determine the improvements needed by each part of it; and
3. To estimate their costs; so that
4. The cost of improving the entire System could be ascertained; and
5. The characteristics of the entire proposed System would emerge from the Inventory.

The first four objectives are discussed in this chapter; the fifth is discussed in Chapter V.

The discussion of the findings of the inventory must obviously be devoted in large part to the roads now in existence. The proposed additions to the System are presented in detail in the next chapter, which describes the entire highway plant the Commonwealth will have if the recommendations of the Commission are accepted.

The proposed Trunkline Highway System contains 7,929[1] miles of road. Of this total, 7,836 miles are roads that are now in existence (sometimes with a different location from that which is proposed, where a straightening or where by-passing a congested area is recommended). The remaining 93 miles are made up of new major improvements in urban areas where the existing road plant is basically inadequate and has to be expanded as described in the preceding chapter.

VARYING USE OF TRUNKLINE HIGHWAYS

Roads with average daily traffic (A.D.T.) of 1,500 or less may be classed as lightly traveled. Even during a rather busy hour, the busiest of these roads will carry only about two cars per minute in the direction of heavier travel. At 40 to 50 miles an hour,

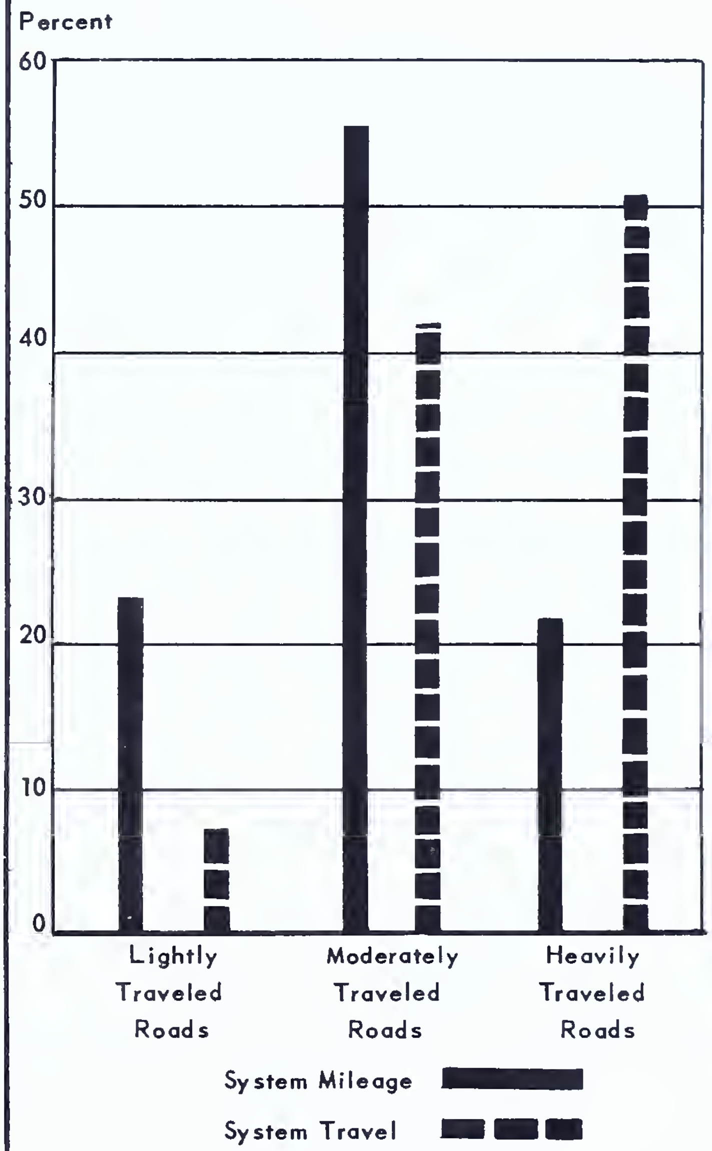


CHART IV-1

COMPARISON of ROAD MILEAGES and ROAD USE TRUNKLINE SYSTEM these cars will average one-third of a mile apart. Vehicles will rarely interfere with one another unless the road is very crooked and places suitable for passing a car ahead are few.

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[1] Exclusive of the 327 miles of the Pennsylvania Turnpike. As previously noted, this mileage is classified as Trunkline, but the Turnpike, for reasons already given, was not inventoried and its mileage does not figure in any of the discussion contained in this Chapter.

Roads having an A.D.T. between 1,500 and 5,000 can be considered moderately traveled. A two-lane road will satisfactorily move this traffic volume, unless the road is poorly designed.

Traffic above a 5,000 A.D.T. can be considered heavy traffic. At least three lanes are needed to accommodate it.

These are arbitrary divisions, but they facilitate understanding the Trunkline System and the use made of it. Table IV-1 illustrates this use.

Approximately one-fourth the Trunkline mileage may be classed as lightly traveled; something over one-half has a moderate traffic; just over one-fifth is heavily traveled.

It is interesting, however, to note from Chart IV-1 the fractions of the total annual traffic that are accommodated by these different groups of Trunklines. The 23 percent of the roads that are lightly traveled carry not one-fourth but only seven percent - one-fourteenth - of the vehicle miles of travel on the Trunkline System. The 55 percent of the roads that are moderately traveled have 42 percent of the vehicle miles. The comparatively small mileage - 22 percent - of heavily traveled roads accommodates 51 percent of the traffic. These heavily traveled roads are the workhorses of the System - the ones that earn a large share of highway revenues.

Table IV-1

MILES AND PERCENTAGE OF TOTAL MILEAGE

CARRYING DIFFERENT VOLUMES OF TRAFFIC

Trunkline System

A.D.T.	*Miles*		*Percent of System Mileage*	
Light:				
0 - 200	3.0		.0	
200 - 400	59.8		.8	
400 - 800	358.5		4.6	
800 - 1,500	1,406.4		17.9	
Subtotal		1,827.7		23.3
Moderate:				
1,500 - 5,000		4,318.6		55.1
Heavy:				
5,000 - 10,000	1,323.9		16.9	
10,000 - 20,000	330.8		4.2	
20,000 and over	35.0		.5	
Subtotal		1,689.7		21.6
Total		7,836.0		100.0

DEFICIENCIES OF THE TRUNKLINE SYSTEM

The Trunkline System was broken down into short sections and the deficiencies of each of these were noted. There were 3,485 sections. Of these, 1,614 or 46 percent had no deficiencies when measured against the tolerable standards, while 1,871 or 54 percent of these sections had one or more deficiencies each. The more important types of deficiencies and the number of sections in which each type was observed are shown in Table IV-2.

Eighty-three percent of the defective sections had a rough, badly worn or badly shaped surface. In a substantial majority of cases, there was also a defective base. On two-thirds of the sections, the pavement was too narrow, and nearly as many had inadequate shoulder and side-ditch widths.

Surface defects usually make a road uncomfortable to ride on. In addition, by letting water through to soften the foundation they lead eventually to the break-up of the road. Consequently, they are serious.

Bad drainage leads to surface deterioration.

Table IV-2

PRINCIPAL TYPES OF DEFICIENCIES AND FREQUENCY OF THEIR OCCURRENCE

Trunkline System

Deficiency	*Number of Sections with Deficiency*	*Percentage of Defective Sections with this Deficiency*[a]
Defective surface	1,544	83
Pavement too narrow	1,262	67
Defective base	1,224	65
Graded width too narrow	1,168	62
Sight distance too short	326	17
Sharp curves	305	16
Too many rolling grades	145	8
Excessive grades	116	6

[a] Total number of sections with one or more deficiencies - 1,871

Inadequate pavement and shoulder widths are, however, even more serious faults since they detract greatly from the safety of a road. The outstanding weakness of the roads comprising the Trunkline System is their narrowness. This is brought out clearly in Table IV-3 and Chart IV-2.

The table and chart show that as traffic on our roads has grown, the capacity of the road system has failed to keep pace. In Table IV-3, all roads below the offset line have adequate width - at least as measured by the tolerable standards. All roads above that line lack adequate width, even when measured by the tolerable standards.

Widths are reasonably adequate on the lightly traveled roads. Eighty-six percent of this mileage meets the tolerable standard. Since however, the lightly traveled roads as a whole carry only seven percent of all Trunkline traffic, the adequacy of these roads does not give great benefits.

Ninety-three percent of the Trunkline travel is on moderately or heavily traveled roads, and nearly half of this mileage fails to meet the tolerable pave-

Table IV-3

PAVEMENT WIDTHS IN RELATION TO TRAFFIC VOLUMES

Trunkline System[a]

Road Lengths with Various Ranges of A.D.T.
(miles)

Pavement Width (in feet)	*0-200*	*200-400*	*400-800*	*800-1,500*	*1,500-5,000*	*5,000-10,000*	*10,000-20,000*	*Over 20,000*	*All Ranges*
12, 13				.4					.4
14, 15			13.2	7.9	14.1				35.2
16, 17		8.6	49.7	236.4	274.3	34.9			603.9
18, 19		51.2	245.6	776.9	1,520.8	186.8	1.2		2,782.5
20, 21			45.8	199.3	686.8	171.7	32.4		1,136.0
22, 23			.4	142.9	1,016.5	130.7			1,290.5
24 - 29				19.6	264.4	89.6	26.6		400.2
30 - 32			2.5	7.0	135.3	209.1	43.8		397.7
33 - 39			.8	5.5	271.2	233.5	59.1	7.0	577.1
40 - 43				.7	43.1	57.9	63.2	4.6	169.5
44 and over			.5	2.3	89.8	209.7	104.5	23.4	430.2
Total miles		59.8	358.5	1,398.9	4,316.3	1,323.9	330.8	35.0	7,823.2
Miles too narrow			13.2	244.7	1,809.2	613.7	163.1	7.0	2,850.9
Miles O.K.		59.8	345.3	1,154.2	2,507.1	710.2	167.7	28.0	4,972.3
Percent too narrow			3.7	17.5	41.9	46.4	49.3	20.0	36.4
Percent O.K.		100.0	96.3	82.5	58.1	53.6	50.7	80.0	63.6

Mileages above line are too narrow

Mileages below line have acceptable widths

[a] Total mileage in this table does not quite agree with that shown in Table IV-1 because of a small amount of unpaved mileage.

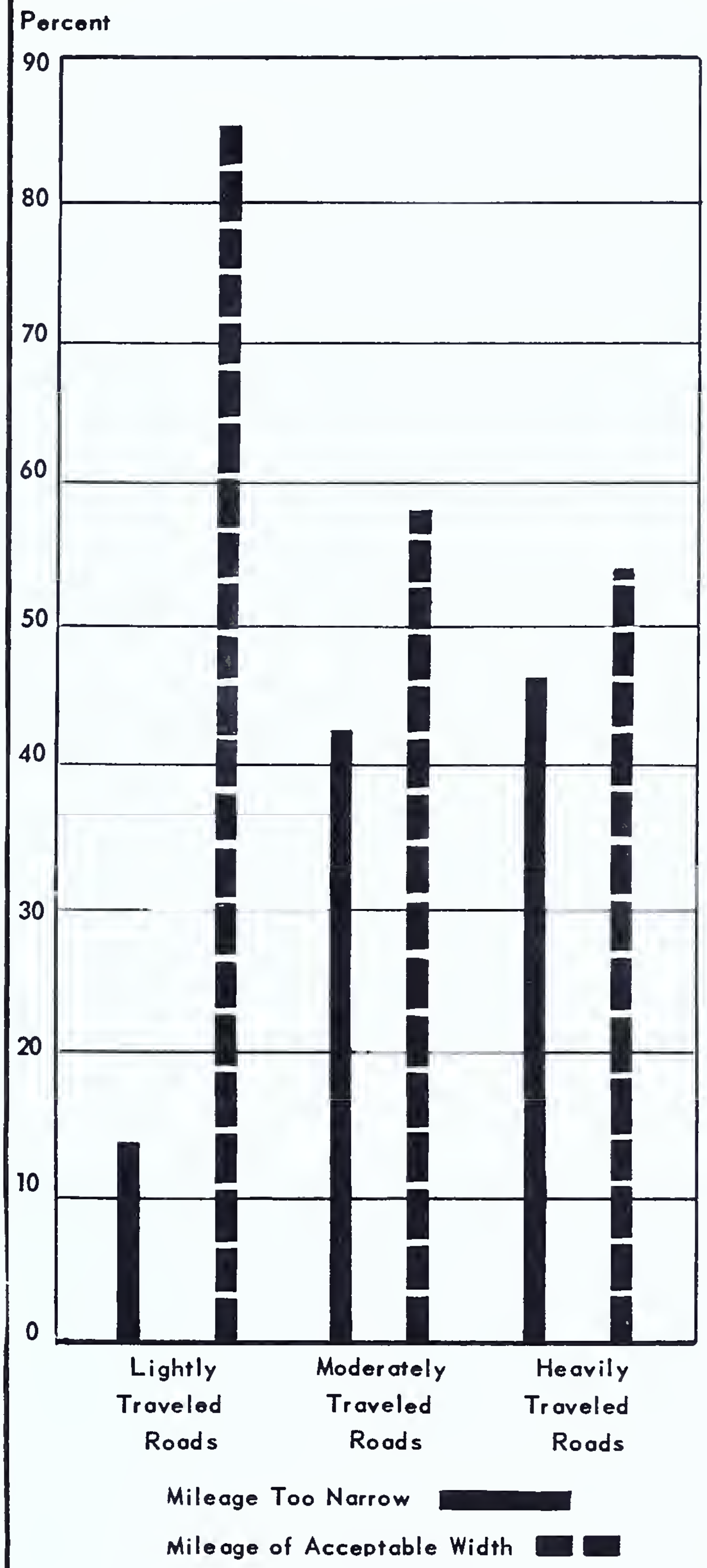


CHART IV-2
SATISFACTORY and UNSATISFACTORY PAVEMENT WIDTHS on TRUNKLINE SYSTEM

ment width standards.

There are 614 miles of two-lane roads - almost enough to span the length and breadth of the State - having traffic already heavy enough to justify three lanes.

A good illustration of overcrowding due to insufficient road capacity.

There already is sufficient traffic to justify four lanes on 110 miles of three-lane roads and on 60 miles of two-lane roads (33 miles of which are not even 22 feet wide). The situation is already bad, especially since these road widths have been measured against the tolerable standards only. If measured by new construction standards, 58 percent of the moderately traveled roads and 63 percent of the heavily traveled roads would fail to meet the test.

With inevitable future traffic increases, the situation will become critical indeed unless vigorous steps are taken to relieve it. Building more width into the highway system is a "must," from the standpoint of both the efficiency of travel and its safety.

PROPOSED TRUNKLINE IMPROVEMENTS

Consideration of the Trunkline System defects presented in Table IV-2 shows that they can be divided into two broad classes from the standpoint of remedial action. They are so grouped in Chart IV-3.

Defective surface, narrow pavement, defective base and graded width too narrow are generally capable of correction without major relocation of the road. Roads that have only these defects lend themselves to salvage operations, thus preserving as much as possible of the value still in the road.

In contrast, roads that have the last four defi-

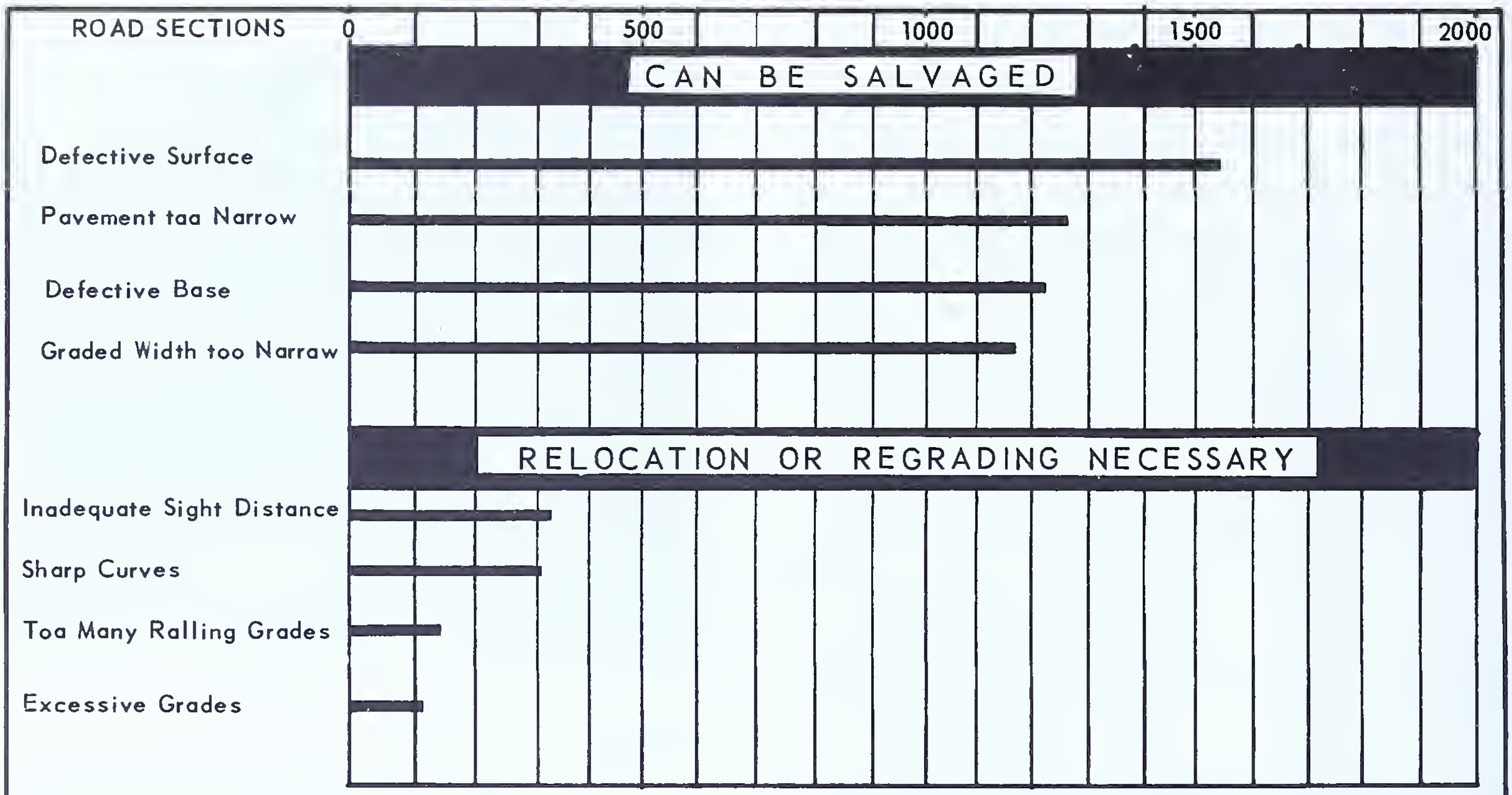
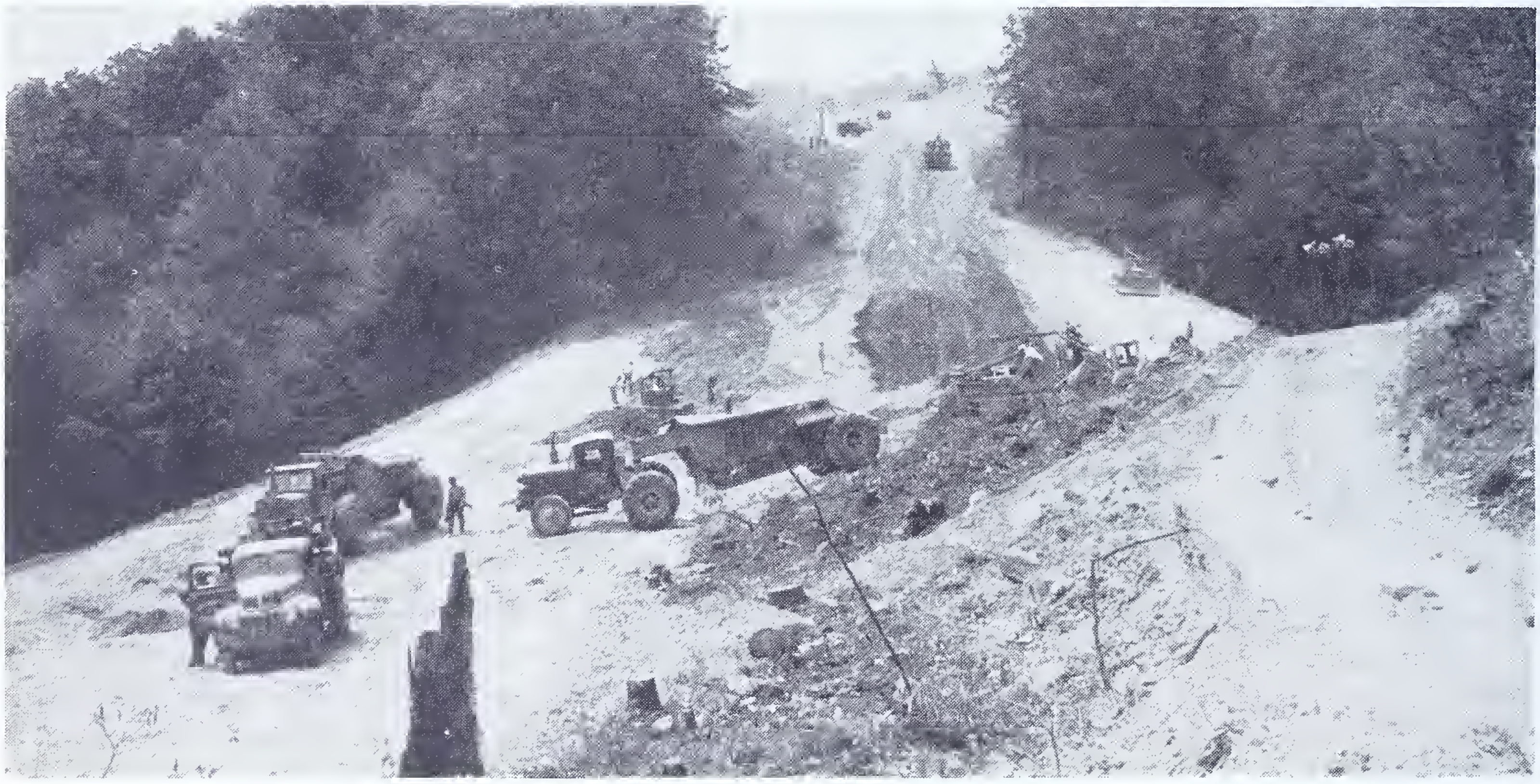


CHART IV-3
TRUNKLINE SYSTEM DEFECTS

ciencies shown in Table IV-2 must usually be torn up, regraded or rebuilt on the same right-of-way, or even relocated on a new right-of-way. Of course, roads with worn-out and narrow pavements and roadbeds often have poor line and grade as well. Fortunately for Pennsylvania, however, as Chart IV-3 clearly shows, most of the road location in past years has been of a high order of excellence.



Steep grades and sharp curves frequently require that a road be completely rebuilt.

Type of improvement. Consequently, much of the road improvement program proposed by the Commission is a salvage operation - to widen, resurface and otherwise rehabilitate roads on their existing locations.

Where limited reconstruction operations of this sort will produce, at relatively low cost, a road that will render satisfactory service for another 12 years or more, they have been recommended. When however, existing line and grade are such that a road adhering to them, even though reconstructed with adequate width and a good base and surface, will not give satisfactory service, new construction is proposed. Finally, when line and grade now meet the new construction standards, but traffic capacity is seriously lacking, the addition of a new lane is proposed.

Table IV-4 summarizes the miles of Trunklines now meeting the Commission's tolerable standards, and those which fail to meet these standards and have been scheduled for one of the three types of improvement, i.e., limited reconstruction, new construction, or additional lane construction.

Table IV-4 merits extended comment, since it presents over 60 percent of the total statewide expenditure for road and bridge improvements on the Trunkline System which the Commission proposes for the next 12 years.

Satisfactory mileage. Despite traffic growth and highway deterioration that will not be offset by proper maintenance, 41 percent of the Trunkline mileage should measure up to tolerable standards at the end of 12 years. Consequently this mileage is not recommended for improvement within that period. From the standpoint of use, this satisfactory mileage runs the gamut from very lightly to very heavily traveled roads. On the average it carries a little lighter traffic than the unsatisfactory mileage, as shown by the fact that although comprising 41 percent of the Trunkline System's length, it accommodates only 39 percent of the System's vehicle-miles of travel.

Limited reconstruction. The cost of salvaging a road through limited reconstruction at $45,300 a mile is only a little more than one-seventh of the cost of completely rebuilding a road. This is offset somewhat by the facts that the rebuilt road will

Table IV-4

MILEAGE AND COSTS OF PROPOSED IMPROVEMENTS

Trunkline System

Type of Improvement	*Length*			*Cost*		
	Miles	*Percent of Total Length*	*Percent of Length Needing Improvement*	*Total (in millions)*	*Per Mile*	*Percent of Total Cost*
None (road satisfactory for 12 years)	3,207	40.8				
Limited reconstruction	2,626	33.4	56.5	$119	$ 45,300	18.5
New construction	1,469	18.7	31.6	445	303,300	69.1
Additional lane construction	553	7.1	11.9	80	144,700	12.4
Total	7,855[a]	100.0	100.0	$644		100.0

[a] Includes 19 miles of new road in rural locations.

continue to be satisfactory for a longer period and will give a higher quality of service while satisfactory, besides correcting bad existing conditions.

It might be thought that another reason for the very much lower cost of limited reconstruction is because it is applied largely to two-lane roads which are cheaper per mile than three- or four-lane roads. This is not the case, however, as shown by the comparison in Table IV-5. An even larger percentage of the new construction mileage is made up of two-lane roads.

This limited reconstruction is a very economical and valuable part of the improvement program. The limited reconstruction, of course, might have been dispensed with and all mileages not meeting the tolerable standards brought all the way up to the new construction standards.

Had this been done, the $119 million cost of limited reconstruction jobs would have been increased to $796 million. This would have added $677 million to the cost of the 12-year program - about equal to the revenue to be expected in 12 years from a two-cent increase in the gasoline tax.

New construction. While the limited reconstruction proposals form a valuable part of the overall improvement program, the new construction improvements are even more important. When a mile of road is given new construction, the resulting benefit to a vehicle using it is much more than the benefit conferred when a mile of road is given a limited reconstruction. This is true because the standard to which the first road is raised is higher. It is even more true because the first road was so much less satisfactory to travel on before improvement than the second road.

New construction will be a great gain for users of the roads on which it is proposed, by changing them from very bad to very good; whereas limited reconstruction changes a road from not so very bad to fairly good. It would be just as great a mistake to apply limited reconstruction to a road needing a complete rebuilding as it would be to apply new construction standards to a road that merely needs a face lifting.

Table IV-5

ROAD MILEAGES RECOMMENDED FOR LIMITED RECONSTRUCTION AND NEW CONSTRUCTION

Trunkline System

Road Type	*Percent of Limited Reconstruction*	*Percent of New Construction*
Two-lane roads	87.3	90.9
Three-lane roads	9.7	7.6
Four-lane roads	3.0	1.5
Total	100.0	100.0

The new construction costs much more per mile, but on the roads for which it is proposed, it is also worth much more. It is also worth more to the individual traveler. It is worth more *in the aggragate* because the roads for which new construction is proposed generally carry much more traffic than those for which limited reconstruction is proposed. Although the per mile cost of new construction is nearly seven times as high, the per vehicle-mile cost is in a very much lower ratio.

Additional lane construction. Additional lane construction is another salvage operation. It brings the road all the way up to the new construction standards and so assures its serviceability for many years to come. It costs over three times as much per mile as limited reconstruction, but because it is, by its nature, applied to heavily traveled roads, its cost per vehicle-mile is not excessive. Because it is a salvage operation, its cost per mile is less than half that of complete new construction.

This classification of improvement also includes the "climbing lane" that has met with such approval on two-lane roads in mountainous country, especially when there is considerable heavy truck traffic. For the sections where it is proposed to be used, this type of construction has great merit.

TRUNKLINE SYSTEM IMPROVEMENT COSTS

Relationship between improvements and traffic volumes. Table IV-6 summarizes the relationship between types of improvement and the amounts of travel on the roads improved.

On the lightly traveled roads most of the mileage to be improved would receive limited reconstruction. About one mile in five would be completely rebuilt. There is practically no additional lane construction. (A few roads now with less than 12 feet of paved width would be widened to two lanes.)

On the moderately traveled roads the greatest number of miles would receive limited reconstruction. This would be mainly on roads with lower traffic. New construction has become more important, and in a good many cases means building three- or four-lane roads to replace over burdened two-lane roads.

When heavy traffic volumes are reached - as on the 674 miles of two-lane roads now carrying three - and four-lane traffic - the mileage of limited reconstruction improvements becomes relatively small. Here the emphasis is on high-type roads of adequate capacity. To get such roads, 49 percent of the mileage has to be rebuilt and another 26 percent should add an additional lane.

Relationship between expenditures and traffic volumes. The trend from the lower-cost to the higher-cost types of improvement, as traffic volumes increase, is even more evident from the percentages of expenditure. On the lightly traveled roads limited reconstruction accounts for nearly half the total expenditure; on the heavily traveled roads this type of expenditure is just over six percent.

Conversely, the new construction expenditure rises from 52 percent to 78 percent, as consideration shifts from lightly traveled to heavily traveled roads. Expenditure for additional lane construction rises from one percent to 16 percent.

Table IV-6

MILEAGES AND EXPENDITURES BY TYPE OF IMPROVEMENT AND VOLUME OF TRAFFIC

Trunkline System

	Volume of Traffic					
	Light		*Moderate*		*Heavy*	
Type of Improvement	*Percent of Mileage*	*Percent of Expenditure*	*Percent of Mileage*	*Percent of Expenditure*	*Percent of Mileage*	*Percent of Expenditure*
Limited reconstruction	78.0	47.0	61.7	25.8	24.8	6.2
New construction	21.5	51.9	27.8	62.3	49.0	78.0
Additional lane construction	.5	1.1	10.5	11.9	26.2	15.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

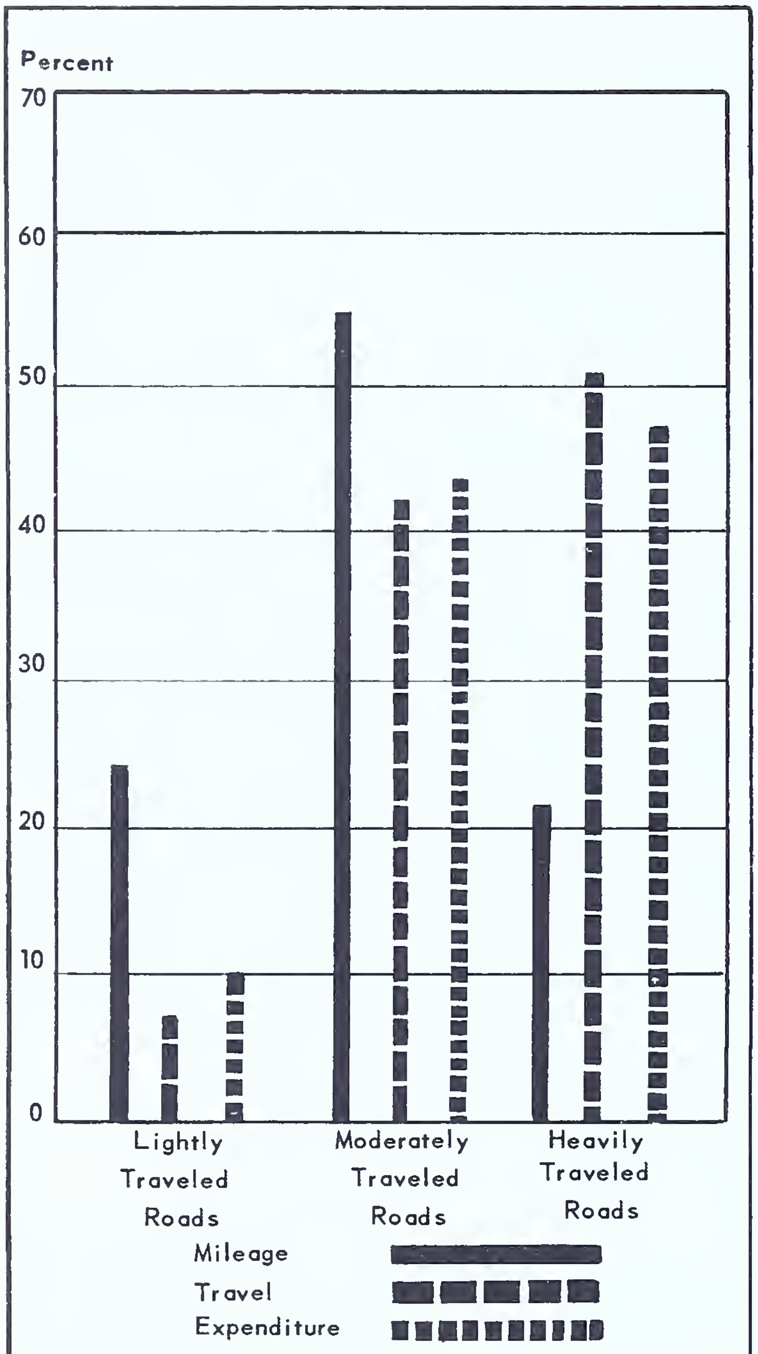


CHART IV-4
RELATIONSHIP of MILEAGE
TRAVEL and EXPENDITURE
TRUNKLINE SYSTEM

In summarized form, Chart IV-4 shows the relationship of the Trunkline Highway mileages, traffic volumes and proposed expenditures. Since roads serve traffic, the amount of expenditure which a road can support is related to the amount of traffic using it. Chart IV-4 shows that the proposed program has a reasonably close correlation between proposed expenditures and traffic served.

Costs by type of improvement. Table IV-7 shows costs for each type of recommended improvement. However, the cost data are more significant when converted to costs per mile of road, as in Table IV-8.

In this form they show why new construction is so much more costly than limited reconstruction. For the former type of road, grading, drainage and new pavement are very large items, while rights-of-way and engineering costs are also substantial. There are no correspondingly costly items in limited reconstruction where resurfacing, pavement repairs and widening provide the top figures. Additional lane construction has similar characteristics to both limited reconstruction and new construction. This is shown by the way in which every cost item for this type of work is moderately substantial, lying between the extreme costs of the other two improvement types.

In both the new construction and additional lane construction categories, the pavement type proposed are high grade. Rigid pavements are used almost throughout (94 percent of the mileage). High-type flexible pavements are used where foundation conditions indicate they are desirable.

Relative urgency of improvements. The urgency of improvements was given consideration in the survey. A record was made of whether each road section proposed for improvement is already below the tolerable standards in one or more ways, or whether it will fall below them within 12 years because of prospective traffic increases or through further deterioration.

Of the 4,648 miles proposed for improvement, 1,647 or 35 percent now fail to meet tolerable standards; 65 percent are expected to fall below them before 1962. However, the more urgently needed improvements are the more costly. Forty-five percent of the proposed expenditure is needed on roads already below standard. Allowing for additional roads falling below standard, it is evident that even with the most careful selection of projects, the finest judgment in designing improvements and the greatest energy in furthering the 12-year program, it will be years before accumulated deficiencies can be remedied.

Table IV-7

BREAKDOWN OF EXPENDITURE BY TYPE OF IMPROVEMENT AND COST

Trunkline System

Type of Improvement	*Right-of-way*	*Grading and Drainage*	*Pavement Repairs and Widening*	*Resurfacing*	*New Pavement*	*Engineering*	*Total*
Limited reconstruction	$ 3,770,000	$ 21,147,000	$28,789,000	$50,681,000	$ 4,040,000	$10,494,000	$118,921,000
New construction	43,725,000	192,759,000	973,000	804,000	168,155,000	39,081,000	445,497,000
Additional lane construction	8,053,000	19,796,000	15,569,000	9,174,000	20,537,000	6,868,000	79,997,000
Total	$55,548,000	$233,702,000	$45,331,000	$60,659,000	$192,732,000	$56,443,000	$644,415,000

Table IV-8

COST PER MILE OF ROAD BY TYPE OF IMPROVEMENT AND COST

Trunkline System

Type of Improvement	*Right of-way*	*Grading and Drainage*	*Pavement Repairs and Widening*	*Resurfacing*	*New Pavement*	*Engineering*	*Total*
Limited reconstruction	$ 1,400	$ 8,100	$11,000	$19,300	$ 1,500	$ 4,000	$ 45,300
New construction	29,800	131,200	700	500	114,500	26,600	303,300
Additional lane construction	14,600	35,800	28,200	16,600	37,100	12,400	144,700

Some underpasses like this one have inadequate clearance for today's vehicles.

TRUNKLINE SYSTEM IMPROVEMENT MAP

Map 5 shows the mileage of the Trunkline System (outside city limits) broken down into the portions that are satisfactory for 12 years and the portions needing improvement within that time. The latter portions are identified according to the type of improvement proposed; i.e., limited reconstruction, new construction or additional lane construction. The scale of the map is too small to show improvements within cities.

Appendix I catalogs all the proposed Trunkline improvements by counties and by routes, improvement types and estimated costs.

DEFICIENCIES OF BRIDGES

Bridges on the Trunkline System are in good repair; some bridges, however, are not strong enough to carry the tolerable 15-ton load; others do not have the specified 14-foot vertical clearance. The Commission proposes that all bridges with these defects be replaced within 12 years (except in a few cases where the deficiency can be corrected).

Replace of posted bridges	$ 12,604,000
Widening or replacement of narrow bridges	16,860,000
New bridges required by road relocations	87,953,400
Total	$117,417,400

In comparison with the other costs outlined, this will require only a small outlay. Of the 4,252 Trunkline bridges, 162 are posted. The average cost of replacing one of these posted bridges is estimated to be $77,800 - total cost $12,604,000.

The number of bridges shown by field inventory to be in need of widening (where feasible) or replacement by a wider structure is much larger - 534 - but the average cost is less - $31,600 - and the total cost of correcting width deficiencies was estimated at $16,860,000.

Road relocations cause the largest element of bridge costs for the Trunkline System. Relocations proposed for the next 12 years will require 586 new bridges with a span of over 10 feet at a total cost of $87,953,400.

Bridges that are too weak, or vehicles that are too heavy, or both may cause accidents like this.

The total cost of bridge improvements on the Trunkline System, exclusive of the structures found in proposed new urban facilities, follows:

MAJOR NEW FACILITIES

The proposed improvements in rural areas are largely the betterment or rebuilding of roads that now exist.

In urban areas, however, traffic growth has so greatly exceeded the capacity of many existing roads that frequently the present road plant calls for drastic expansion. A large division of the inventory covers these additional needs.

The details of this study of new urban improvements are given in Chapter V, covering 24 urban regions having 26 cities. The estimated cost of these new urban facilities which should be built within 12 years is about $278 million. All of these projects are part of the Trunkline System.

TOTAL COSTS OF TRUNKLINE IMPROVEMENTS

The cost of this proposed program is as follows:

Trunkline Highways excluding major urban improvements	$ 644,415,200
Trunkline bridges	117,417,400
Major urban improvements	277,514,400
Total	$1,039,347,000

Intercommunity Road System

The objectives of the Intercommunity System inventory are much the same as for the Trunkline System. The Intercommunity System contains 10,365 miles, making it larger than the Trunkline System. Also it serves an entirely different purpose, as described in Chapter II.

VARYING USE OF INTERCOMMUNITY ROADS

This System carries much less traffic than the

Table IV-9

MILES AND PERCENTAGE OF TOTAL MILEAGE CARRYING DIFFERENT VOLUMES OF TRAFFIC

Intercommunity System

A.D.T.	*Miles*		*Percent of System Mileage*	
Light:				
0 - 200	578.1		5.6	
200 - 400	1,979.2		19.1	
400 - 800	3,385.9		32.7	
800 - 1,500	2,386.1		23.0	
Subtotal		8,329.3		80.4
Moderate:				
1,500 - 5,000		1,784.6		17.2
Heavy:				
5,000 - 10,000	200.4		1.9	
10,000 - 20,000	50.1		.5	
20,000 and over	000.0		0.0	
Subtotal		250.5		2.4
Total		10,364.4		100.0

Trunkline System, although its most heavily traveled parts carry more traffic than some Trunklines. These particular parts connect highly populated communities or provide access to highways on the Trunkline System.

The mileage of the Intercommunity System when divided into light, moderate and heavy classes of traffic presents a far different picture from the Trunkline System, as Table IV-9 shows.

Approximately four-fifths of the Intercommunity System mileage is lightly traveled compared to one-fourth of such mileage on the Trunkline System. Moderate traffic uses slightly less than one-fifth of the Intercommunity System; such traffic occupies over half the Trunkline System. Heavy traffic utilizes almost one-fifth of the Trunkline System, but only one-fortieth of the Intercommunity System.

DEFICIENCIES OF THE INTERCOMMUNITY SYSTEM

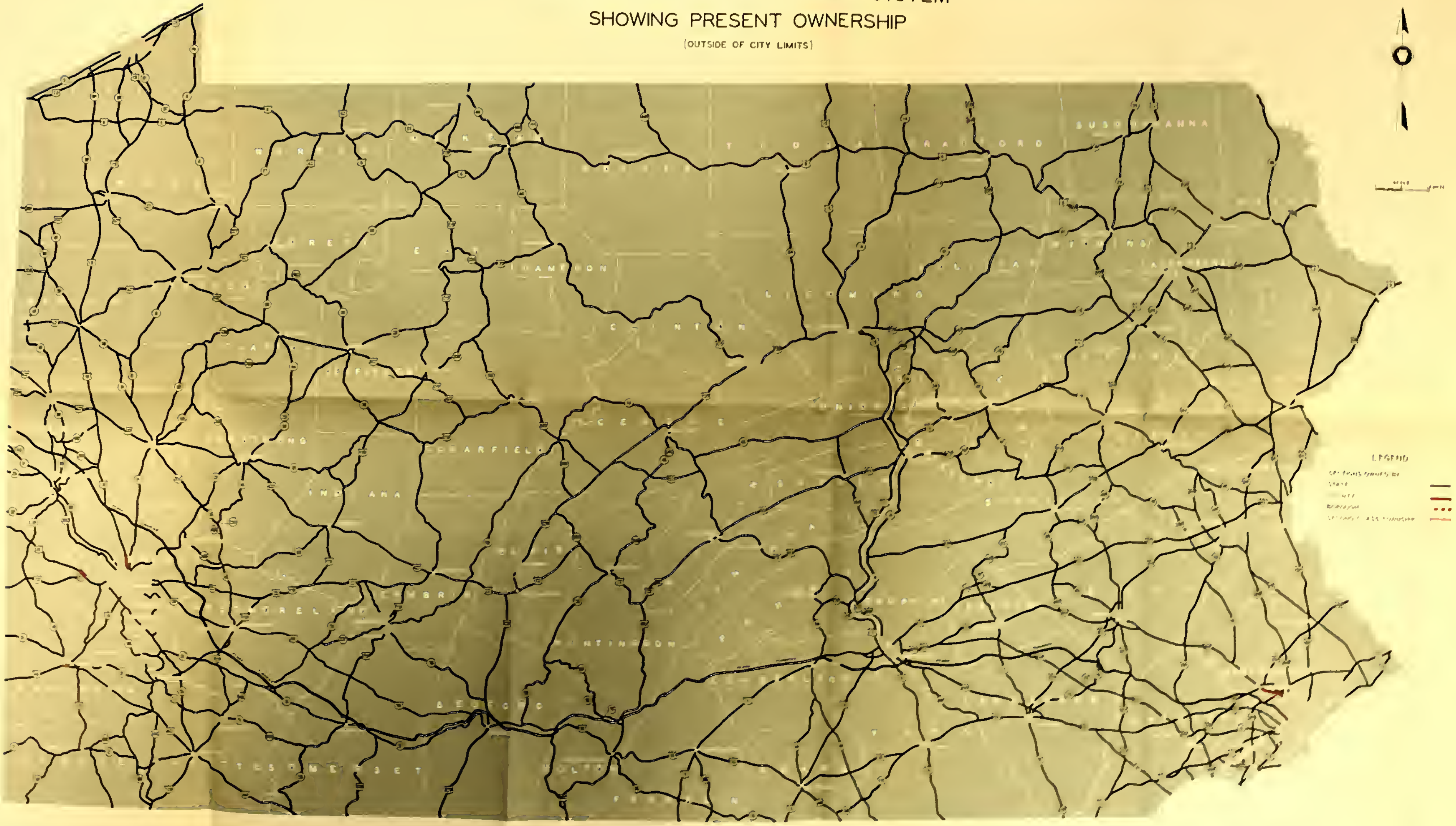
As in the case of the Trunkline System, the Intercommunity System was broken down into short sections for inventory and the deficiencies of each were then noted. There were 4,675 sections. Of these, 2,448 or 52 percent had no deficiencies when measured against the tolerable standards; while 2,227 or 48 percent had one or more deficiencies in each. The more important deficiencies and the number of sections having each type deficiency are shown in Table IV-10.

The most frequent deficiency on the System was too narrow pavement. Four-fifths of the defective sections showed this defect. Defective surface - including a broken or badly worn surface as well as one rutted, too high-crowned or of otherwise poor shape - was a very close second. Many of the roads on this

COMMONWEALTH OF PENNSYLVANIA **MAP 2** HIGHWAY PLANNING COMMISSION

PROPOSED TRUNKLINE HIGHWAY SYSTEM
SHOWING PRESENT OWNERSHIP

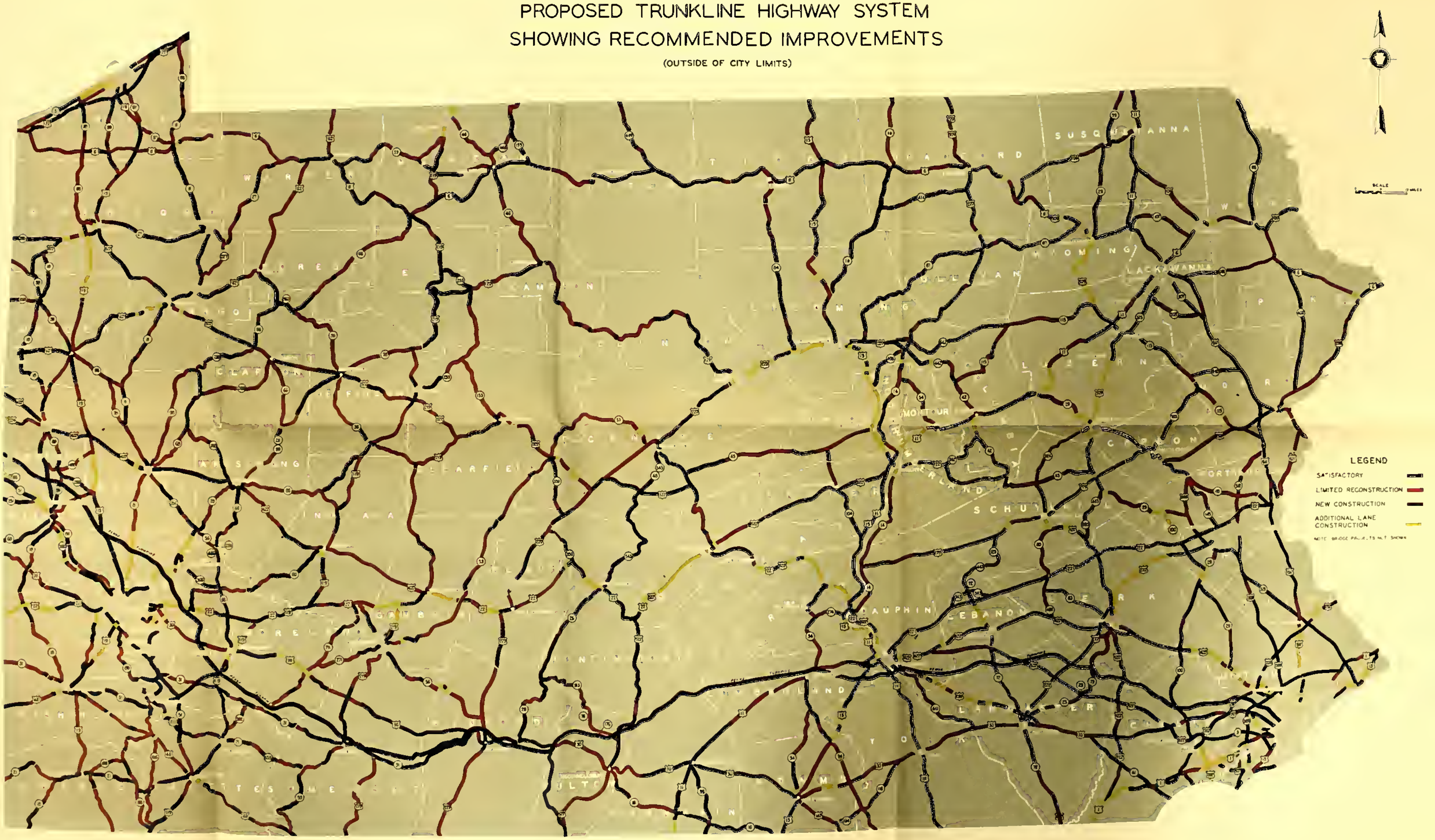
(OUTSIDE OF CITY LIMITS)



COMMONWEALTH OF PENNSYLVANIA **MAP 5** HIGHWAY PLANNING COMMISSION

PROPOSED TRUNKLINE HIGHWAY SYSTEM SHOWING RECOMMENDED IMPROVEMENTS

(OUTSIDE OF CITY LIMITS)



COMMONWEALTH OF PENNSYLVANIA **MAP 6** HIGHWAY PLANNING COMMISSION

PROPOSED INTERCOMMUNITY ROAD SYSTEM SHOWING RECOMMENDED IMPROVEMENTS

(OUTSIDE OF CITY LIMITS)

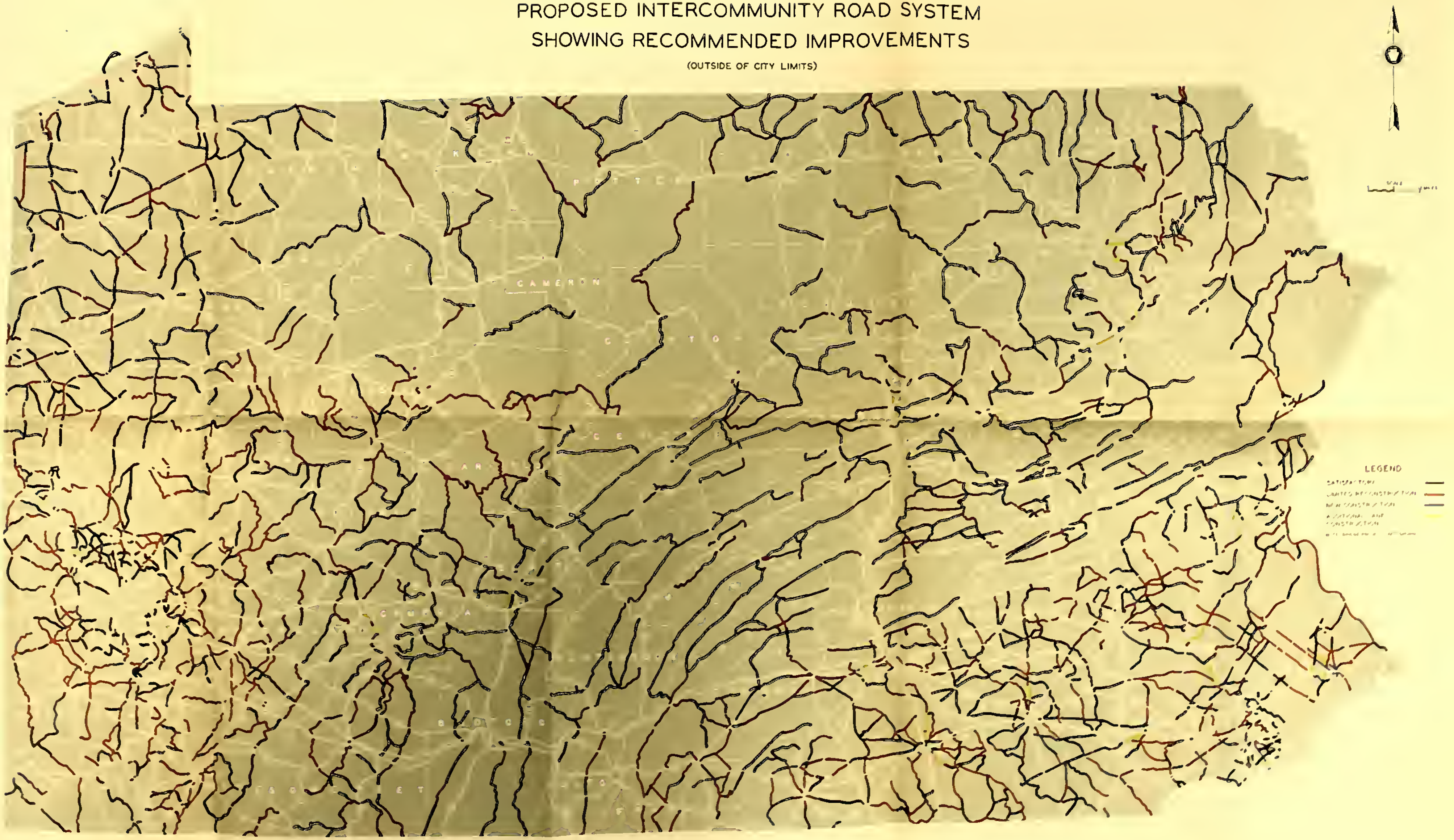


Table IV-10

PRINCIPAL TYPES OF DEFICIENCIES AND FREQUENCY OF THEIR OCCURRENCE

Intercommunity System

Deficiency	*Number of Sections with Deficiency*	*Percentage of Defective Sections with this Deficiency*[a]
Pavement too narrow	1,546	69
Defective surface	1,519	68
Graded width too narrow	1,375	62
Defective base	606	27
Sharp curves	454	20
Sight distance too short	403	18
Too many rolling grades	176	8
Excessive grades	65	3

[a] Total number of sections with one or more deficiencies - 2,227.

System are high-crowned and have narrow pavements and shoulders. The roads of the Intercommunity System were worse than the Trunklines in both curvature and sight-line deficiencies, but like the Trunklines, these deficiencies were less frequent than deficient pavement condition and width.

Table IV-11 shows a situation with respect to narrow pavements for Intercommunity Roads similar to that shown in Table IV-3 for Trunklines. Roads carrying very light traffic volumes are usually adequate in width - at least when measured against the tolerable standards. As traffic becomes greater, so do the pavement width deficiencies. Widening of this System is badly needed.

In the Intercommunity System, however, the great need is for wider lanes - not more lanes. Only 104 miles of Intercommunity Roads have already developed enough traffic to warrant one or more additional lanes, as against 784 such miles on the Trunkline System. Further traffic increases on this System, however, will put additional mileage in the categories requiring an additional lane.

PROPOSED INTERCOMMUNITY ROAD IMPROVEMENTS

As on the Trunkline System, the deficiencies of the Intercommunity System can be divided into two groups - one salvageable, the other usually requiring relocation or regrading. Table IV-12 shows the satisfactory mileage of the Intercommunity System and also the improvements proposed. Table IV-12 also shows the total System cost of each type of road improvement, the average cost per mile of each type and the percentage of the total expenditure for the System proposed to be spent on each type.

Table IV-11

PAVEMENT WIDTHS IN RELATION TO TRAFFIC VOLUMES

Intercommunity System[a]

Road Lengths with Various Ranges of A.D.T.
(miles)

Pavement Width (in feet)	*0-200*	*200-400*	*400-800*	*800-1,500*	*1,500-5,000*	*5,000-10,000*	*10,000-20,000*	*Over 20,000*	*All Ranges*
10, 11	23.2	34.5	33.7						91.4
12, 13	14.8	39.2	23.8	.5					78.3
14, 15	342.7	925.1	901.0	235.8	39.5				2,444.1
16, 17	128.9	671.4	1,404.0	811.0	422.6	1.4	.1		3,439.4
18, 19	23.1	259.3	830.2	853.1	568.7	25.7	2.3		2,562.4
20, 21		30.7	158.7	315.3	200.3	11.4	2.6		719.0
22, 23		6.2	11.9	99.3	258.5	18.9			394.8
24 - 29		3.1	10.5	30.1	128.4	24.5	.6		197.2
30 - 32			5.2	13.0	61.5	27.4	7.7		114.8
33 - 39		4.4	2.7	19.2	74.1	41.5	8.7		150.6
40 - 43		.1	.3	4.0	18.1	27.6	6.5		56.6
44 and over			.4	2.4	12.8	24.7	21.6		61.9
Total miles	532.7	1,974.0	3,382.4	2,383.7	1,784.5	203.1	50.1		10,310.5
Miles too narrow	38.0	73.7	958.5	1,047.3	1,030.8	81.9	22.0		3,252.2
Miles O.K.	494.7	1,900.3	2,423.9	1,336.4	752.7	121.2	28.1		7,058.3
Percent too narrow	7.1	3.7	28.3	43.9	57.8	40.3	43.9		31.5
Percent O.K.	92.9	96.3	71.7	56.1	42.2	59.7	56.1		68.5

Mileages above line are too narrow

Mileages below line have acceptable widths

[a] Total mileage in this table does not agree with that shown in Table IV-9 because of a small amount of unpaved mileage.

A comparison of this table with the corresponding table for the Trunkline System (Table IV-4) shows that the Intercommunity System more closely approaches the tolerable standards than the Trunkline System. Fifty percent of the Intercommunity mileage is satisfactory, as against 41 percent of the Trunkline mileage. Moreover, of the defective Intercommunity mileage, 74 percent can be rehabilitated by inexpensive limited reconstruction as against 57 percent of the Trunkline miles. Consequently, the total expenditure on the Intercommunity System does not need to be nearly as large as on the Trunkline System. It totals $286 million or well under half as much despite its greater mileage.

The principal reason for this lower cost is that the Intercommunity Roads are much more lightly traveled. As traffic volumes fall, the conformity of

Table IV-12

MILEAGES AND COSTS OF PROPOSED IMPROVEMENTS

Intercommunity System

Type of Improvement	*Length*			*Cost*		
	Miles	*Percent of Total Length*	*Percent of Length Needing Improvement*	*Total (in millions)*	*Per Mile*	*Percent of Total Cost*
None (road satisfactory for 12 years)	5,206	50.2				
Limited reconstruction	3,811	36.8	73.8	$132	$ 34,500	46.0
New construction	1,261	12.2	24.5	142	112,900	49.7
Additional lane construction	87	.8	1.7	12	142,200	4.3
Total	10,365	100.0	100.0	$286		100.0

roads to acceptable standards of roads condition grows closer. Further, when a lightly traveled road requires improvement, the cost is much less per mile than for a heavily traveled road.

This explains why the limited reconstruction cost per mile averages $34,500 for the Intercommunity System as against $45,300 for the Trunkline; and why new construction on the Intercommunity System (where 78 percent of these miles scheduled for new construction are lightly traveled) is estimated at only $112,900 per mile, as compared with $301,000 per mile on the Trunkline System (where 86 percent of the new construction mileage is moderately or heavily traveled). Most of the Trunkline to be rebuilt will need to have three or four lanes; almost none of the Intercommunity Roads will need more than two.

On the other hand, it will be noted that the cost per mile of additional lane construction is almost identical on the two Systems - $142,200 on the Intercommunity System and $144,700 on the Trunkline System. The reason is that these particular roads on the two Systems carry about the same amount of traffic. On each of the Systems, 99 percent of the mileage proposed for additional lane construction carries either moderate or heavy traffic.

Despite the fact that the per mile cost of Intercommunity System improvements is much less than on the Trunkline System ($55,500 per improved mile, lumping all types of improvement together, against $138,600 per improved mile on the Trunkline System) the cost of the proposed improvements per vehicle mile of travel is more on the Intercommunity System than on the Trunkline System. The ratio of per mile costs on the two Systems is 1: 2.5; but the ratio of vehicle miles of travel on the defective mileages of the two Systems is 1: 2.29 in favor of the Trunklines.

Table IV-13 shows itemized construction costs for each type of improvement on the Intercommunity System and Table IV-14 shows these on a per mile basis. Comparison of Tables IV-7 and IV-8 to IV-13 and IV-14 throws additional light on the differences in costs of Trunkline Highways and Intercommunity Roads.

Table IV-13

BREAKDOWN OF EXPENDITURE BY TYPE OF IMPROVEMENT AND ITEM OF COST

Intercommunity System

Type of Improvement	*Right-of-way*	*Grading and Drainage*	*Pavement Repairs and Widening*	*Resurfacing*	*New Pavement*	*Engineering*	*Total*
Limited reconstruction	$ 5,811,700	$28,846,300	$29,814,600	$52,289,000	$ 3,127,900	$11,688,000	$131,577,500
New construction	11,316,000	57,581,300	315,200	514,000	60,253,000	12,381,200	142,360,700
Additional lane construction	1,871,600	3,410,200	2,204,300	1,720,100	2,129,700	1,031,800	12,367,700
Total	$18,999,300	$89,837,800	$32,334,100	$54,523,100	$65,510,600	$25,101,000	$286,305,900

Table IV-14

COST PER MILE OF ROAD BY TYPE OF IMPROVEMENT AND ITEM OF COST

Intercommunity System

Type of Improvement	*Right-of-way*	*Grading and Drainage*	*Pavement Repairs and Widening*	*Resurfacing*	*New Pavement*	*Engineering*	*Total*
Limited reconstruction	$ 1,500	$ 7,600	$ 7,800	$13,700	$ 800	$ 3,100	$ 34,500
New construction	9,000	45,700	200	400	47,800	9,800	112,900
Additional lane construction	21,500	39,200	25,300	19,800	24,500	11,900	142,200

INTERCOMMUNITY SYSTEM IMPROVEMENT COSTS

The Intercommunity System includes no projects for the construction of additional major urban traffic facilities. The total road improvement cost for the system is $286,305,900. (See Table IV-13.)

Even though the per mile cost of new construction is less on the Intercommunity System than on the Trunkline System, the savings realized by salvaging Intercommunity Road miles through limited reconstruction, instead of completely rebuilding them, are considerable. The additional cost of new construction of the 3,811 miles proposed for limited reconstruction would have been $78,400 per mile, or a total of $299 million. This additional cost would more than double the proposed road improvement outlay for the System and is about equal to the revenue to be expected in 12 years from a 3/4 cent increase in the gasoline tax.

INTERCOMMUNITY SYSTEM IMPROVEMENT MAP

Map 6 shows the mileage of the Intercommunity Road System (outside city limits) broken down into portions that are satisfactory for 12 years and portions needing improvement. The latter portions are also identified according to the type of improvement proposed; i.e., limited reconstruction, new construction or additional lane construction. The scale of the map is too small to show improvements within cities.

Appendix II catalogs all the proposed Intercommunity Road improvements by counties and by routes, improvement types and estimated costs.

DEFICIENCIES OF BRIDGES

The inventory of bridges on the Intercommunity System followed the general pattern of the Trunkline bridge inventory. The Intercommunity System is made up very largely of mileage from the State Highway System and the State Rural System. Of an estimated 5,345 bridges on the Intercommunity System, approximately 3,740 are now State Highway bridges and 1,605 State Rural bridges, or bridges with characteristics similar to those of State Rural bridges.

On the State Highway System, 3.8 percent of the bridges are posted; on the State Rural System, 24 percent are posted. Consequently, on this basis the approximate number of posted bridges on the Intercommunity System is 527

The bridge shown here, posted for both weight load and clearance, is one of several thousand posted bridges in the Commonwealth.

The average cost of rebuilding bridges on the State Rural System is $31,000. Applying this figure to 527 Intercommunity System bridges the cost of replacing them all in 12 years will be $16,337,000. The Commission proposes that these replacements be made.

From the field inventory reports on narrow Intercommunity bridges, the Commission's staff has concluded that 585 bridges of 10-foot span, or greater, should be widened (when possible) or replaced with wider bridges. The unit cost of these replacements has been estimated at $19,000. The widening program will require a total expenditure of $11,115,000.

Much less relocation of Intercommunity Roads is required than of Trunklines. The relocations proposed will require 240 new bridges at an estimated replacement cost of $50,000 each - a total of $12,000,000.

The 12-year cost of bridge replacements and widenings on the Intercommunity Road System is:

Replacement of posted bridges	$16,337,000
Widening and replacement of narrow bridges	11,115,000
Bridges required by road relocations	12,000,000
Total	39,452,000

TOTAL COST OF INTERCOMMUNITY ROAD SYSTEM IMPROVEMENTS

The cost of this proposed program is:

Intercommunity Roads	$286,305,900
Intercommunity bridges	39,452,000
Total	$325,757,900

Community Service Road System

COMMUNITY SERVICE ROADS

Of the 14,748 miles in the Community Service System, 13,552 are now in the existing State Systems - largely the State Rural System. Most of this mileage has a light-type flexible surface, or better.

Community Service mileage not owned by the State, is now owned and maintained by counties, cities, boroughs and first - and second-class townships. These miles, totaling about 1,200, of which 845 are second-class township roads, are comparable in condition to the portion of the System drawn from the State Rural Highways. The total unimproved mileage on the entire System is estimated at 700 miles.

The Commission proposes that all of this unimproved mileage be improved within a 12-year period. This will require a small amount of relocation and the purchase of new rights-of-way. It is proposed that relocation of this lightly traveled mileage should be held to a minimum, however, to cause no greater disturbance to existing developments along these roads than is necessary. They are not intended for fast travel and they are so lightly traveled that there is little interference of one vehicle with another. Hence, they do not require substantially higher standards of alignment. Generally, it will be necessary to:

> Correct and improve existing drainage and to install new drainage where required;
>
> Do the minumum grading required to provide adequate road bed and shoulder widths;
>
> Place a six-inch or eight-inch base, usually 16 feet wide; and
>
> Top this with a light two-inch asphaltic top course.

At present prices, the average cost for this work would be about $40,000 per mile. The cost of so improving 700 miles over 12 years will be $28,000,000.

At the other extreme of the Community Service System there are about 400 miles of fairly heavily traveled roads and streets in poor condition in relation to the amount of traffic expected to use them within the next 12 years. This mileage should be rebuilt, bringing these roads to the new construction standards for the traffic volumes expected to use them.

This will generally require a fair amount of new drainage; extensive repairing and reinforcing of existing bases, with some replacement of those completely worn-out; widening of bases and shoulders as required by prospective traffic; placing a new two and one-half inch asphaltic surface. The average cost would be about $80,000 per mile, making the total expenditure for this part of the Community Service System over the next 12 years $32,000,000.

Between these two extreme improvement types, the System has approximately 13,500 miles of road most of which is now adequate. As shown earlier, the more lightly traveled roads in the state generally have adequate widths. Moreover, it has been shown that the most lightly traveled roads in the Intercommunity System (which are most nearly comparable to the Community Service Roads) very generally have satisfactory surface and other characteristics that meet the appropriate tolerable standards.

During the 12-year period under consideration, 100 miles per year of Community Service Roads will have deteriorated to a point calling for limited reconstruction to put them into a condition suitable for the light traffic using them. This will entail repairs to drainage and base, minor widening and new light flexible-type surfaces. This should be done at $20,000 a mile, or $24,000,000 for 1,200 miles.

The total proposed road improvement expenditure for the Community Service System is, therefore;

Construction of 700 miles of lightly traveled unimproved roads at $40,000	$28,000,000

Complete rebuilding of 400 miles of more heavily traveled roads at $80,000	32,000,000
Limited reconstruction of 1,200 miles of lightly traveled improved roads at $20,000	24,000,000
Total	$84,000,000

DEFICIENCIES OF BRIDGES

The Community Service bridges (about 6,500) have nearly the same characteristics as the bridges as the bridges on the State Rural Highways.

On the State Rural Highways, 24 percent of the bridges are posted. On this basis, there are 1,560 posted bridges on the Community Service System. Careful estimates of replacement costs of posted State Rural Highway bridges fix the average cost of replacing one of these bridges at $31,000.

The Commission believes that it will not be necessary to replace all of these posted bridges within 12 years. In some cases, the cause for posting can be taken care of by repairs which will be part of maintenance charges. In a great many other cases, the posted bridges are on roads that are used very little by heavy vehicles and can always be avoided by them. The Commission believes that needs will be adequately met by replacing 50 percent of the posted bridges within 12 years. This will require an expenditure of $24,180,000.

Many bridges on this System are narrow. This is especially true of the bridges that are inadequate in strength and have low vertical clearence as well. Consequently, the proposed elimination of posted bridges will eliminate many of the narrowest bridges. The same thing will be true of bridges with the worst approach alignments. It is probable that during the next 12 years, it may be necessary to replace a few bridges primarily because of their narrowness or poor alignment. It was felt, however, that the number of these cases would not be large enough to warrant a separate estimate of costs for them.

COMMUNITY SERVICE ROAD SYSTEM IMPROVEMENT COSTS

The cost of this proposed program is as follows:

Community Service Roads	$84,000,000
Community Service bridges	24,180,000
Total	$108,180,000

Local Road System

Table II-1 gives the mileage of the Local Road System, as proposed - a total of 66,821 miles. Of these 7,870 (classed as urban) are located in cities or other municipalities having a population of 10,000 or more. The remaining 58,951 miles (classed as rural) are located in first- or second-class townships, or boroughs, with less than 10,000 oppulation.

RURAL LOCAL ROADS

Though essentially local in use, the rural Local Roads have a fairly wide range of traffic and of variations in their use. Some are used daily as school bus routes, mail routes, milk-collection routes, etc. They are important to a sizeable number of people. On the other hand, many miles lead only to one or a very few homes, or in some cases only to isolated meadows, wood lots, etc.

The first of these two types of rural roads may be called "Local Service Roads" and the second type "Property Access Roads." The two types are affected with substantially different degrees of public interest.

The field inventory of the rural Local Road System in selected townships leads to the conclusion that 19,690 miles, or one-third of the 58,951 miles, measures up to the "Local Service Road" definition. The remaining 39,261 miles are essentially "Property Access Roads." They perform little or no other function than to give access to properties immediately fronting on them.

The form used by the field engineers in reporting Local Road conditions divided the inventoried mileage into Local Service and Property Access types, gave the traffic and use characteristics of each section, and reported the surface type and width of each. It reported the engineer's opinion as to whether the present condition of the road was consistent with the use made of the road; and if not, the steps to be taken to bring road condition into line with road function.

For the 19,690 miles of rural Local Service Roads, findings based in the inventory were as follows:

Miles now in satisfactory condition	17,286
Miles requiring stabilization	1,416
Miles to be improved from earth to a light-type bituminous surface with base	277
Miles to be improved from stabilized to a light-type bituminous surface with base	456
Miles of flexible type pavement requiring resurfacing	180
Miles of rigid type pavement requiring resurfacing	75
Total Miles	19,690

Besides the 1,416 miles of earth road requiring stabilization, there are approximately 2,400 miles of stabilized road now included in the 17,286 miles of satisfactory Local Service Roads. Hence, there would be a total of 3,816 miles of stabilized road. It is considered that during the next 12 years this stabilized mileage should be restabilized twice. The better paved roads that make up the bulk of the satisfactory mileage, if properly maintained, will not require further improvement during the next 12 years.

The estimated cost of the improvements that the Local Service Roads will require is shown in Table IV-15.

Table IV-15

ESTIMATED EXPENDITURE FOR RURAL LOCAL SERVICE ROADS

12-YEAR PROGRAM

Type of Improvement	*Miles To Be Improved*	*Average Cost per Mile*	*Total*
Stabilization	1,416	$ 4,800	$ 6,796,800
Earth to light-type bituminous	277	18,000	4,986,000
Stabilized to light-type bituminous	456	2,700	1,231,200
Resurfacing flexible-type	180	6,000	1,080,000
Resurfacing rigid-type	75	14,000	1,050,000
Restabilization	7,632[a]	780	5,953,000
Total			$21,097,000

[a] This is the 3,816 miles restabilized twice. (See above discussion.)

Stabilization and adequate drainage can remedy bad road conditions like this.

With this improvement the entire mileage of the Local Service Roads will have an all-weather surface and will be completely travelable throughout the year.

PROPOSED IMPROVEMENT OF PROPERTY ACCESS ROADS

The Commission recommends that in making rural Local Road System improvements, priority be given to those in the Local Service group. However, the Property Access Roads must also have attention during the 12-year period. Since the Property Access Roads are now farther from being in suitable condition than the Local Service Roads are, the total amount recommended to be spent on their improvement is more than is proposed for the Local Service Roads. The breakdown of expenditure recommended for the Property Access Roads is shown in Table IV-16.

On the entire rural mileage of the Local Road System the proposed expenditure for road improvements then is:

Local Service Roads	$21,097,000
Property Access Roads	37,029,400
Total	$58,126,400

BRIDGES ON THE RURAL LOCAL ROAD SYSTEM

In making this inventory first consideration was given to the replacement or major repair of bridges, the general condition of which was found

Table IV-16

PROPOSED EXPENDITURES ON PROPERTY ACCESS ROADS OF THE LOCAL ROAD SYSTEM

Type of Improvement	*Cost*
Improvement of 21 miles of earth roads to light-type flexible at $18,000 per mile	$ 378,000
Improvement of 96 miles of stabilized roads to light-type flexible at $2,700 per mile	259,200
Stabilization of 2,604 miles of earth roads at $4,800 per mile	12,499,200
Restabilization of 30,632 miles (i.e., 15,316 miles restabilized twice) of stabilized road at $780 per mile	23,893,000
Total	$37,029,400

to be such that the bridge might have to be closed to traffic unless rehabilitated. Only secondary consideration was given to replacing structurally sound bridges in order to increase their load carrying capacity to a 15-ton limit, or to widening bridges to enable them to carry two-way traffic.

Many bridges on the Local Road System are rarely, if ever, called upon to support very heavy loads. Should an occasional heavy vehicle wish to reach a destination from which it is separated by a weak bridge, there is practically always an alternative route which, although perhaps longer, avoids the weak bridge. For these reasons, the Commission adopted the policy stated above. Furthermore, only in extremely rare instances was a bridge proposed for replacement because of relocation of the road on which it stood.

The general condition of bridges on the Local Road System is not as good as could be desired. Besides bridges requiring replacement because of general inadequacy, many bridges are badly in need of major repair. But these, if repaired, will continue to give good service for many years. The bridge program for this road System therefore embraces both the replacement and the rebuilding of bridges.

There are, on the Local Road System, an estimated 14,000 bridges of 10-foot or longer span. (The exact number is not known.) From a study of available data consisting of bridge records compiled by the Department of Highways and of field inventories of certain bridges, it was concluded that during the next 12 years it would be necessary to replace or rebuild 650 more important bridges at an estimated cost of $30,000 each, and to replace or rebuild 2,075 bridges of lesser importance at $8,200 each. The cost of this bridge improvement therefore was:

650 bridges at $30,000	$19,500,000
2,075 bridges at $8,200	17,015,000
Total	$36,515,000

TOTAL RECOMMENDED EXPENDITURE ON RURAL LOCAL ROADS AND BRIDGES

The total recommended expenditure is:

On roads	$58,126,400
On bridges	36,515,000
Total	$94,641,400

BRIDGES ON THE URBAN LOCAL ROAD SYSTEM

Local roads and streets in urban areas may also be grouped like those in rural areas. Property Access streets are residential streets and have practically no use except to give access to the homes fronting on them. Local Service streets, although infrequently used by persons from remote places, perform a service to local persons wishing to reach stores, places of employment, churches, theaters, etc.

As stated in Chapter III an intensive field inventory was not made of local streets. This is true of those in both of the above categories. Instead it was decided that the most satisfactory approach to the improvement needs of this category of roads and bridges would be secured from a study of current and recent expenditures of the cities, urban boroughs and townships. As a result of this study the following estimates of the cost of needed highway and bridge improvements during the next 12 years are:

Cities	$122,380,000
Boroughs — 10,000 population	28,790,000
First-class townships — 10,000 population and over	6,840,000
Total	$158,010,000

TOTAL EXPENDITURE REQUIREMENT OF LOCAL ROAD SYSTEM

The total proposed expenditure for road and bridge improvements on this System is:

In rural areas	$ 94,641,400
In urban areas	158,010,000
Total	$252,651,400

Total Expenditure for the Four Proposed Systems

The expenditures which the Commission proposes should be made during the 12-year period, by road classification systems, are as follows:

Trunkline System	$1,039,347,000
Intercommunity System	325,757,900
Community Service System	108,180,000
Local Road System	252,651,400
Total	$1,725,936,300

Recommendations

IMPROVEMENT PROGRAM

The Commission believes this improvement program can be completed by the end of 1961. Methods of finance are discussed in Chapter VII.

Accordingly, it is recommended that this program be undertaken by the State and appropriate agencies having jurisdiction over the various highways covered. In carrying out the program of limited reconstruction it is recommended that the Department of Highways use standards similar to the tolerable standards used by the Commission in its field inventory. (See Appendix IV.)

While this program has been built around the proposed new classified system of highways, it can be undertaken immediately, while the necessary steps are taken to establish the new road classification program.

LOCAL ROAD CLASSIFICATION

It is further recommended that the Secretary of Highways and the appropriate officials of counties and municipalities be authorized and directed, after the roads of the Commonwealth have been classified into Trunkline, Intercommunity, Community Service and Local Road Systems, to seperate the rural and urban Local Roads into Local Service and Property Access categories.

RIGHT-OF-WAY WIDTH

If this program is to be successfully completed, the Commission believes it is essential to liberalize the provisions of the statues restricting right-of-way widths. The present general limitation of 120 feet (plus additional widths needed for cuts or fills) appears adequate for two-lane roads. It should suffice for three-lane roads also, in all cases where it can be assumed with certainty that no more than three lanes will be needed.

It is not an adequate width for four-lane divided highways, especially where the possibility exists that the four-lane road may some day have to be expanded to six or eight lanes. This is often a definite possibility, and the Commission wishes to emphasize as strongly as it can that the only economical and practical time to acquire right-of-way for a road is at the time of its construction. Later attempts to widen the right-of-way are certain to entail much interference with developments that have grown up alongside the road, and will therefore be both unsatisfactory and very costly.

Standards recommended by the American Association of State Highway Officials specify 150 feet as the minimum and 250 feet as the desirable right-of-way width for a four-lane road. The latter figure may be liberal, but the Commission feels that for most major four-lane roads a 200-foot right-of-way (plus additional width where required for grading) should be acquired. This is the standard right-of-way width both of the original length of the Turnpike and of its extensions. It is not excessive for a major road. A width as great as this, or greater, is now in use in most of the adjoining states. Such a width allows room for an adequate center division, for shoulders wide enough for safe parking, for suitable drainage ditches and for the storage of snow in winter. It allows for expanding the capacity of the road when needed, and it provides a reasonable, clear space between drainage lines and any encroachments of adjacent property.

The Commission recognizes complications in the way of a removal of the 120-foot restriction on right-of-way widths, or its increase in a single step to 200 feet. Because of the compelling importance of adequate rights-of-way for major roads, however, the Commission recommends that for divided highways the Secretary of Highways be empowered to acquire, in addition to a right-of-way of 120 feet, such further width as he may find necessary for a suitable divisor strip.

TRUCK SIZES AND WEIGHTS

In developing its program the Commission has considered the problem of truck sizes and weights. In general the program is based upon the assumption that present limitations will be continued. The standards adopted for road widths and pavement design are geared to present overall limits on size and weight.

In the inventory of the roads instances were observed of pavement deterioration attributable to overloading. However, on vehicle weights and especially on axle loadings in relation to pavement design, not enough specific facts are presently available. A study of the effect of axle loadings on the life of pavements is now being made in Maryland under the auspices of the U. S. Bureau of Public Roads, the District of Columbia, and the highway departments of 11 states, including Pennsylvania. When completed, the findings of that study will give more definite information than is now available as to what the maximum allowable truck weights should be. Since this study will not be completed for several months, the Commission is not submitting recommendations on overall truck weights.

It is believed, however, that consideration should be given to amending the present State law so that it conforms more nearly with the standards of the American Association of State Highway Officials, particularly with respect to trucks equipped with tandem rear axles.

The Commission recommends that meanwhile there be strict enforcement of the laws pertaining to truck weights and sizes, and to the overall width and length of loads that may be carried. The Commission feels that the penalties for violations of these laws should be substantially increased.

V

PENNSYLVANIA'S HIGHWAYS TOMORROW

Trunkline Highway System

This chapter describes the four Systems of roads as they will be if the recommendations of the Commission are carried out.

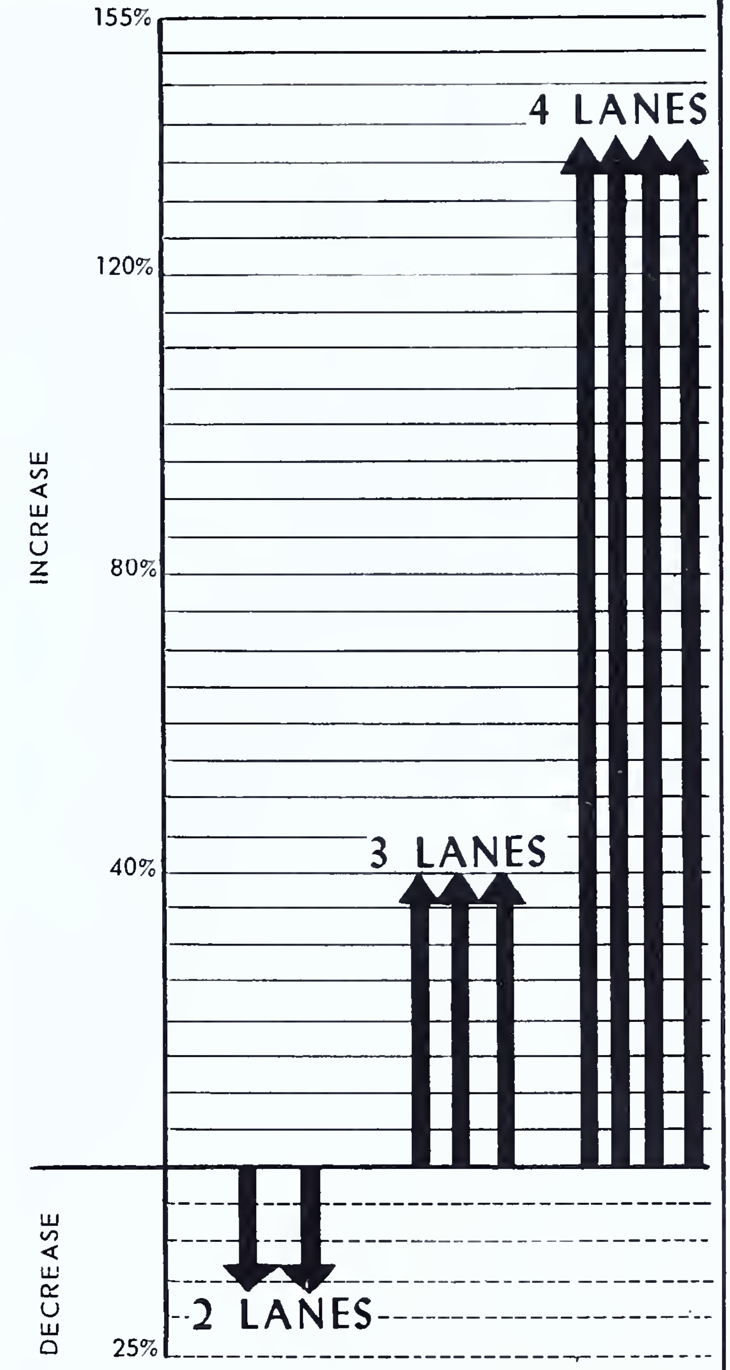


CHART V-1
PERCENTAGE CHANGES in MILEAGES of 2, 3 and 4 LANE ROADS under PROPOSED IMPROVEMENT PROGRAM

The length of the Trunkline System will not be materially increased by the proposed 12-year program. On January 1, 1950, its length was approximately 8,000 miles, including the Pennsylvania Turnpike. If the Commission's recommendations are carried out, on December 31, 1961, it will consist of approximately 8,250 miles.

The increase will have been due mainly to the Eastern and Western Extensions of the Turnpike now nearing completion. Most of the rest of the increase will be due to the major urban improvements recommended by the Commission and discussed in detail later in this Chapter. The total increase in the length of the System will be only about three percent.

A much more material and a very significant change, however, will have been produced in the road width of the System. On January 1, 1950, including the central section of the Turnpike, approximately 79 percent of the Trunkline mileage was two-lane road, 13 percent was three-lane and 8 percent four-lane. If the proposed improvements are carried out, at the end of 12 years these respective percentages will have become 64, 18 and 18.

The comparatively small change in the three-lane mileage will be because the conversion of sections of existing two-lane roads to three-lane will have been offset somewhat by the conversion of existing three-lane mileage to four-lane. However, the existing four-lane mileage will have increased 138 percent. The percentage changes in miles of two- three- and four-lane roads are shown graphically in Chart V-1.

TRAFFIC DISTRIBUTION ON PROPOSED TRUNKLINE SYSTEM

The distribution of traffic on the System will have changed even more. At present nearly half of the System travel is over two-lane roads, with the balance more or less evenly divided between three- and four-lane mileage. On the System proposed by the Commission, the 1962 traffic distribution may reasonably be forecast as being around 25 to 30 percent on two-lane roads, about the same on three-lane roads, and nearly one-half on four-lane roads. In other words, almost three out of every four miles of travel on the System will be over a multiple-lane highway.

Although the traffic will be largely served by multiple-lane mileage, two-thirds of the mileage will remain two-lane since the volumes of traffic available and wishing to use this mileage will not need more than two lanes.

This report has repeatedly emphasized the economic imprudence of building road capacities greatly in excess of available or potentially available traffic. In many regions of the State - in fact, most - the bulk of the Trunkline mileage will continue to be two-lane. But in every region and in every case the roads will have been built for the traffic they must handle. If they have only two lanes, it will be because a good two-lane road is adequate. Wherever the traffic is or will be such as to warrant three or more lanes, it is the belief of the Commission that adherence to the recommendations of this report will provide them.

THREE-LANE HIGHWAYS

Brief comment is warranted on the recommended use of three-lane highways. At some of the public hearings held by the Commission, doubts were expressed as to the wisdom of constructing three-lane highways. The Commission has given very careful consideration to this matter and has reached the following conclusions:

1. The disfavor with which three-lane roads have met in some places is not due to the inherent nature of such roads but to faulty design or overcrowding. Great care and good judgment must be used both in the design and in the selection of suitable localities for the use of three-lane highways. If not, a very unsatisfactory and dangerous road can result.

2. Three-lane design should not be used unless the standards of design are fully adequate. The driver's sight distance must be ample at all times, the pavement must have adequate width and the road must be free from excessive curvature. Present design standards of the Pennsylvania Department of Highways for three-lane roads are satisfactory, and in recent years the Department has produced many excellent and entirely acceptable examples of such design.

3. Recent investigations indicate quite clearly that well designed three-lane roads, when not too heavily traveled, may have a better accident record than either two-lane or undivided four-lane roads. However, it is characteristic of this type of road that when traffic increases beyond a certain point, the traffic hazard rises faster than on other road types. Consequently, three-lane design should never be used where the safe traffic capacity of the road may soon be exceeded. Failure in many states to observe this requirement has led more than anything else to unsatisfactory experience with three-lane highways.

4. An improved highway facility attracts traffic from poorer facilities - if traffic is potentially available, as it always is in large metropolitan areas. Consequently, where populations are large, caution should be used in deciding upon a three-lane design.

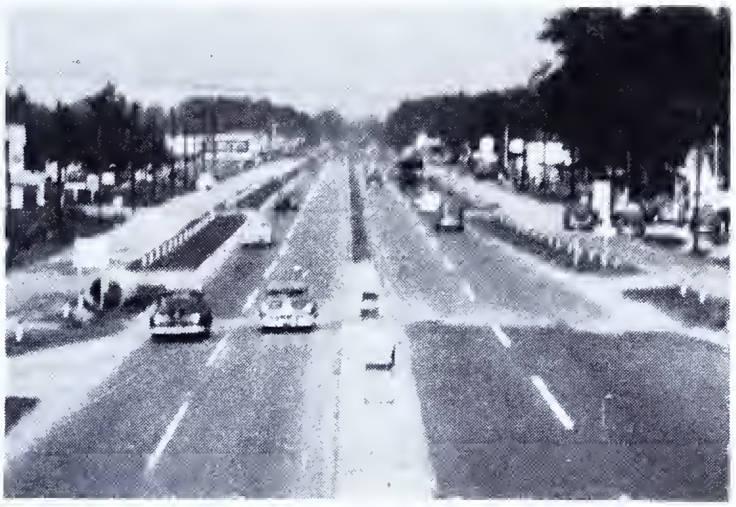
5. Four-lane *undivided* roads in high speed areas are extremely hazardous and are not recommended. Two-lane roads, when seriously overburdened with traffic, become very dangerous and unpleasant to use. Also, four-lane *divided* roads are very costly. (On the rural parts of the Trunkline System, the average cost of the four-lane roads proposed by the Commission is $499,000 per mile, as against $183,000 for two-lane roads. Three-lane roads are $303,000. All costs are exclusive of bridges.) With good design and with care to see that safe capacity will not be exceeded within the reasonable life of the road, three-lane roads have a definite applicability.

In accordance with these conclusions, the Commission has not hesitated to propose three-lane design where it was ascertained to be appropriate.

PRESERVATION OF HIGHWAY VALUES

While on the subject of design, the Commission wishes to emphazise the extreme importance of protecting the public investment in every important and costly road from encroachments that would limit its traffic capacity and add to the hazard of its use. This State, like others, has many examples of major traffic arteries that have quickly developed roadside businesses almost continuously along their lengths to a disastrous degree. Vehicles constantly pulling out of and entering the traffic stream impede traffic, throttle a road's capacity and add greatly to the hazard of its use. It is unsound economy to spend huge amounts of money to build large traffic capacity into a road, and then allow much of that capacity to be dissipated by marginal developments.

The device best adapted to stopping this encroachment on a major road is not always the same. Sometimes, it may be through the construction of service roads flanking, but separated from, the express lanes. Elsewhere, it may best be accomplished by buying from abutting property owners their right of access to the road. Still other means such as acquisition of wider rights-of-way may be employed.



Parallel service roads like this permit roadside development without endangering through traffic.

The Commission emphasizes that the protection of public investment in a road is an extremely important feature in its design. Except in the case of certain urban projects which this report describes in some detail, the Commission has not recommended any particular device for maintaining an undiminished traffic capacity on any particular road. It stresses, however, the great importance of protecting the public's investment, particularly on the multiple-lane roads which it has proposed. This feature of their design should have at least as careful consideration as any other.

TRAFFIC FLOW AND MULTIPLE-LANE MAPS

Map 7 shows the portions of the Trunkline System that are expected to develop volumes of traffic before 1962 sufficient to warrant multiple-lane construction. The critical traffic volumes are: an A.D.T. of 5,000 vehicles for three-lane roads and 10,000 vehicles for four-lane roads.

Map 8 shows the multiple-lane mileage now existing on the proposed Trunkline System together with that recommended for it. These two maps should be considered together, since their relationship is obvious. They give a clear picture of the heavy flows of traffic in the Commonwealth and the Commission's proposals for servicing them.

There is close, though not complete, agreement between the indications of the two maps. In some places, a multiple-lane road is shown where the 1962 traffic does not appear to warrant it. Where these occur in scattered short lengths, they indicate that a third "passing lane" has been provided on long, heavy uphill grades where the slow speeds of heavy vehicles would impede lighter, faster traffic; or they may show the "main streets" of communities through which the road passes. The road may already have been built, with its design based on an expectation of greater traffic growth than the Commission has thought probable. Or it may be that the inventory showed that the existing road had to be replaced with a new one, and that the traffic within the lifetime of the road is expected to reach a volume calling for a multiple-lane facility, even if not by 1962.

On the other hand, there are instances where a road has recently been built, to a high two-lane standard, with excellent pavement, width, grade and alignment. In such a case, no further improvement of the section has been proposed within 12 years, even though by 1962 the estimated traffic may have slightly exceeded the critical volume for multiple-lane construction. It should be remembered that the critical traffic volumes are keyed to tolerable road standards. A road of superior design can, without undue hazard or inconvenience to the traveling public, carry considerably more traffic than a less well designed and built road. The maps also omit some very short multiple-lane "main street" sections in communities not large enough to be identified on the maps.

Map 7 shows the areas of the State where traffic is light as well as those where it is heavy. The map illustrates the truism that traffic is linked to population. Highway traffic is largely local. Where many people live and work, there is heavy traffic. Where few people live and work, there is light traffic. The traffic range map clearly brings out this fact.

THE INTERSTATE HIGHWAY SYSTEM

The Federal Government has designated a part of the Federal-Aid Primary highway mileage of each state as belonging to an important nation-wide network of roads called The Interstate Highway System. This System is considered to be of outstanding national importance, both in times of peace and in times of war. In Pennsylvania it includes U.S. 6, 11, 111, 611, the Turnpike and parts of other routes, all of which have been included in the Trunkline System.

In the development of these roads, Federal road authorities have recommended to the states that in each case the road be designed to carry the traffic volume expected to use it. This is the same basic policy on which the Commission has based its recommendations, although in some respects the Commission standards differ from the Federal.

Although the Commission has not felt that it is generally within its province to propose priorities for the improvements it recommends, it does feel warranted in suggesting that an early priority be given to bringing all the Interstate mileage to a satisfactory condition.

The Commission believes that the Trunkline System, in its entirety, will serve the Commonwealth in time of war and help maintain prosperity in years of peace. Especially the badly needed additions to the road system in our cities will assist in meeting any wartime emergencies as well as meeting more normal requirements. A detailed description of these improvements follows.

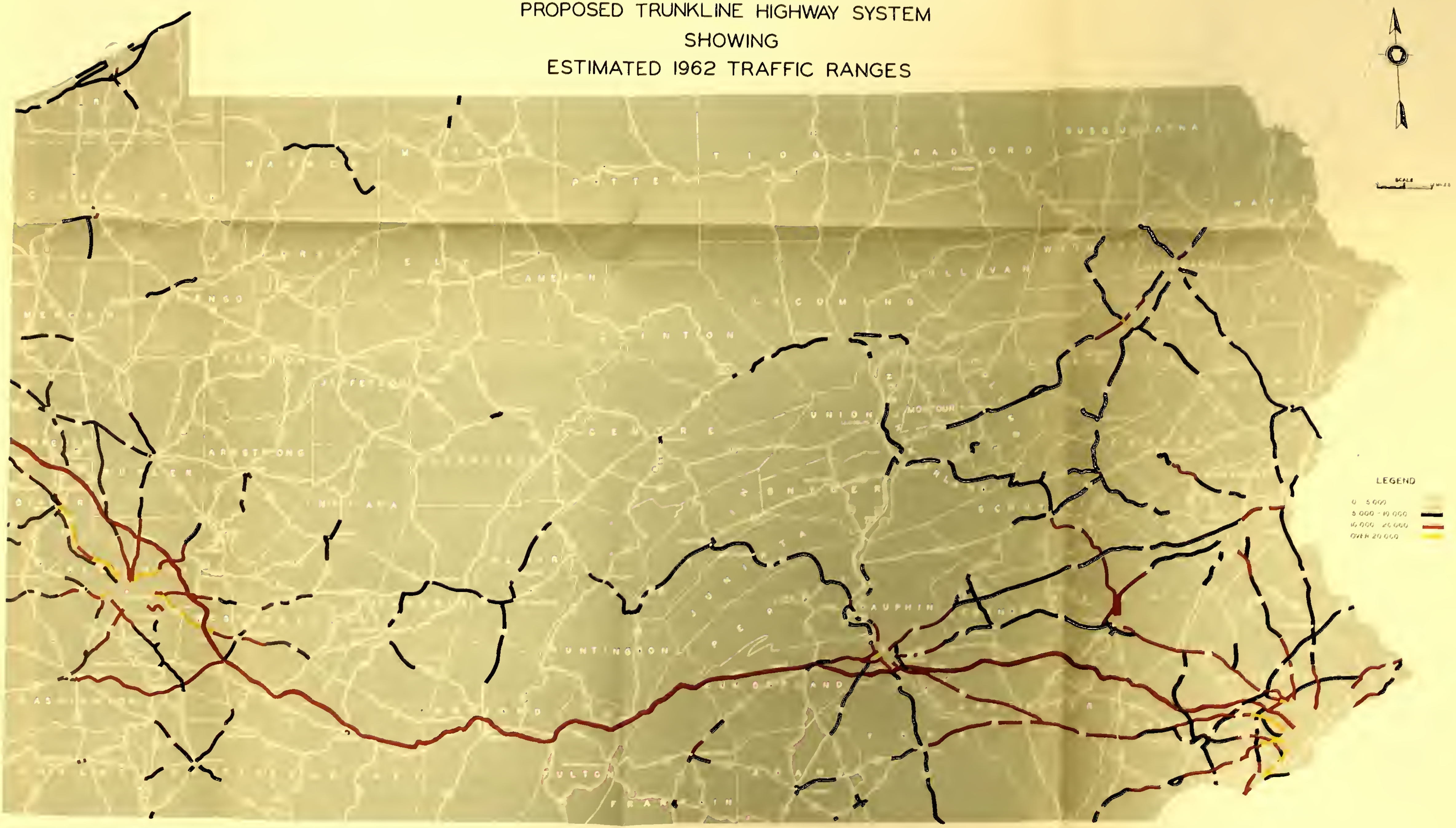
Major Urban Improvements

A substantial portion of the proposed Trunkline improvement program consists of major improvements in 24 urban regions having 26 important municipalities and their neighboring communities. While these improvements will be of direct and important benefit to these urban areas, they also are of major impor-

Possible military demands have been included in the Highway Planning Commission's plans.

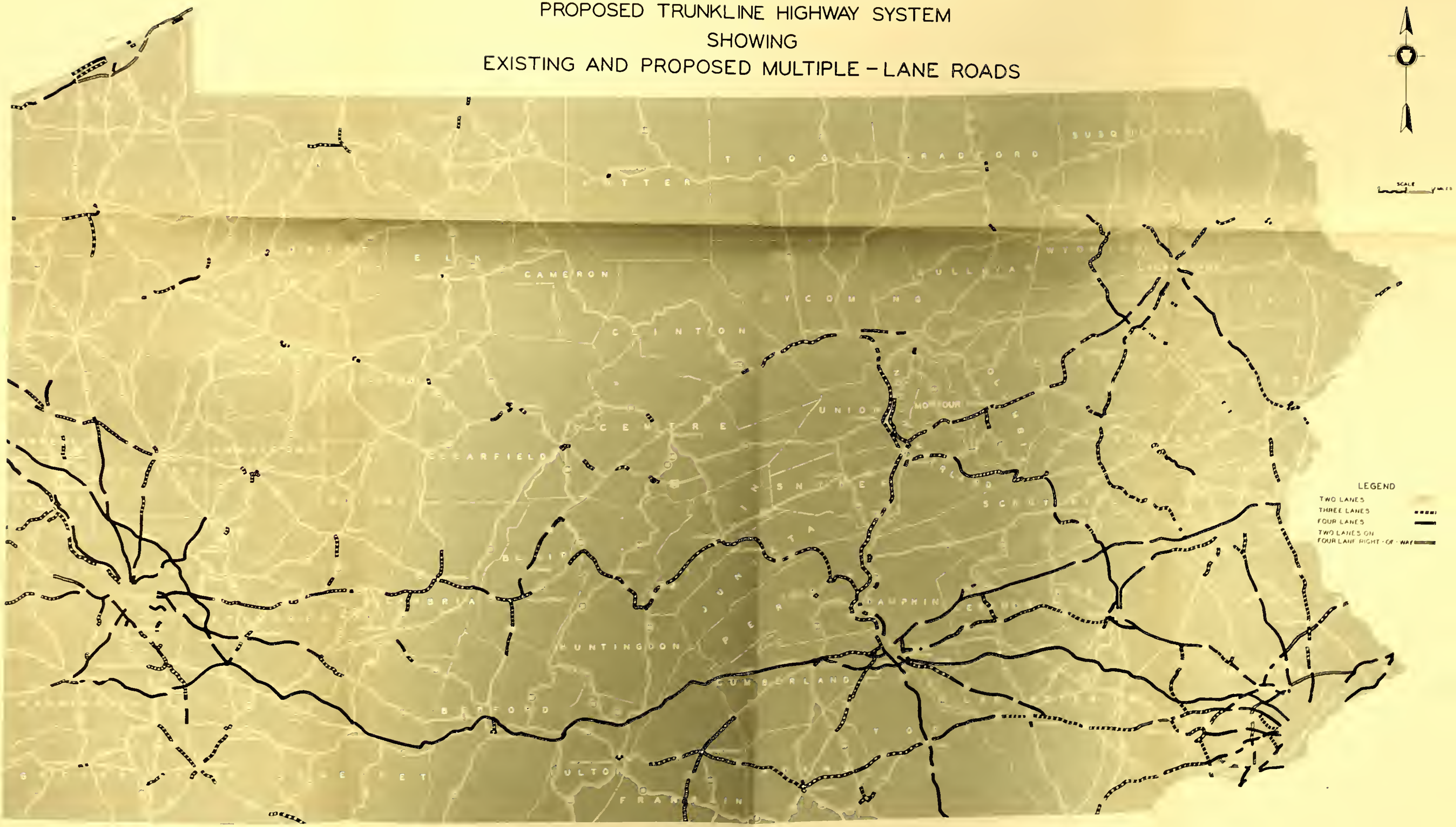
COMMONWEALTH OF PENNSYLVANIA **MAP 7** HIGHWAY PLANNING COMMISSION

PROPOSED TRUNKLINE HIGHWAY SYSTEM
SHOWING
ESTIMATED 1962 TRAFFIC RANGES



COMMONWEALTH OF PENNSYLVANIA **MAP 8** HIGHWAY PLANNING COMMISSION

PROPOSED TRUNKLINE HIGHWAY SYSTEM
SHOWING
EXISTING AND PROPOSED MULTIPLE - LANE ROADS



tance to through Trunkline traffic. Since they consist mainly of by-passes, expressways and arterial streets, with important connecting links to nearby Trunklines, they will serve to get traffic into, out of, through and around these areas with minimum delay, congestion and inconvenience.

The problem is primarily one of eliminating congestion and creating routes free from sharp turns, heavy cross traffic, long and steep grades, traffic-light slow downs, streetcar interference, railroad grade crossings and other traffic interferences.

Many studies of the traffic problem in these communities have been made by the Department of Highways and local planning agencies. These studies were very helpful to Commission engineers in developing the recommendations for improvements.

The cost of the sections of these improvements lying outside the limits of these municipalities is included in the $644 million proposed for Trunkline Highway improvements. (See Chapter IV.)

The cost of the proposed improvements inside the municipalities amounts to $277,514,400 as mentioned in Chapter IV. Of this amount $128,624,430 would be expended in the City of Philadelphia, $97,080,000 in the City of Pittsburgh and $51,809,935 inside the other municipalities.

These proposed improvements are described in detail in the sub-sections which follow.

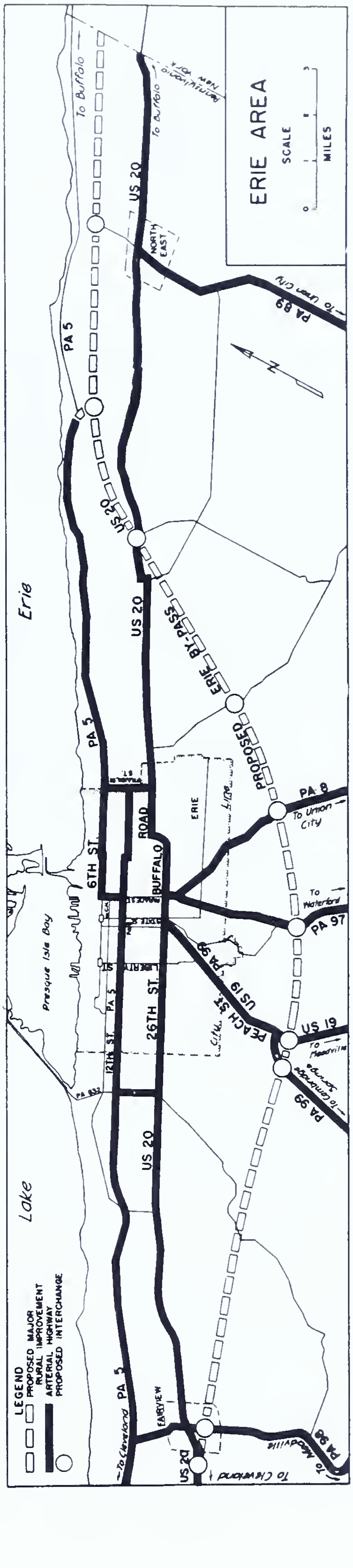
ERIE AREA

Traffic between lake shore cities in Ohio and points in New York crosses Pennsylvania through Erie via U.S. 20 (Carrying over 12,000 vehicles a day) and Pa. 5. These traffic volumes have caused serious congestion. Widening is impractical. Parallel street routings have proven unsuccessful.

An origin and destination survey made in 1948 by the Department of Highways revealed that approximately 6,500 cars per day would prefer to by-pass Erie. Construction of the New York State Throughway to the Pennsylvania State line will further increase traffic and far-sighted highway planning is required now to avoid a serious bottleneck and confusion on the streets of Erie and in the suburban areas.

Proposed By-Pass

Any attempt to expand the present highway west and east of Erie to accomodate local and through traffic would result in serious destruction of improved property and would



still leave the problem unsatisfactorily answered.

A new interstate highway having a 200-foot right-of-way, located approximately as shown on the map, should be undertaken as soon as feasible and made to connect with the proposed New York State Throughway. This would act as a by-pass to the south of Erie and relieve city streets of the increasing through traffic.

The highway should have interchanges as shown to connect conveniently with arterials leading into Erie at various points. The drainage structures, bridges and graded width should be wide enough to accomodate at least a four-lane divided highway. The pavement should be made 24 feet wide at first, with two additional lanes constructed later.

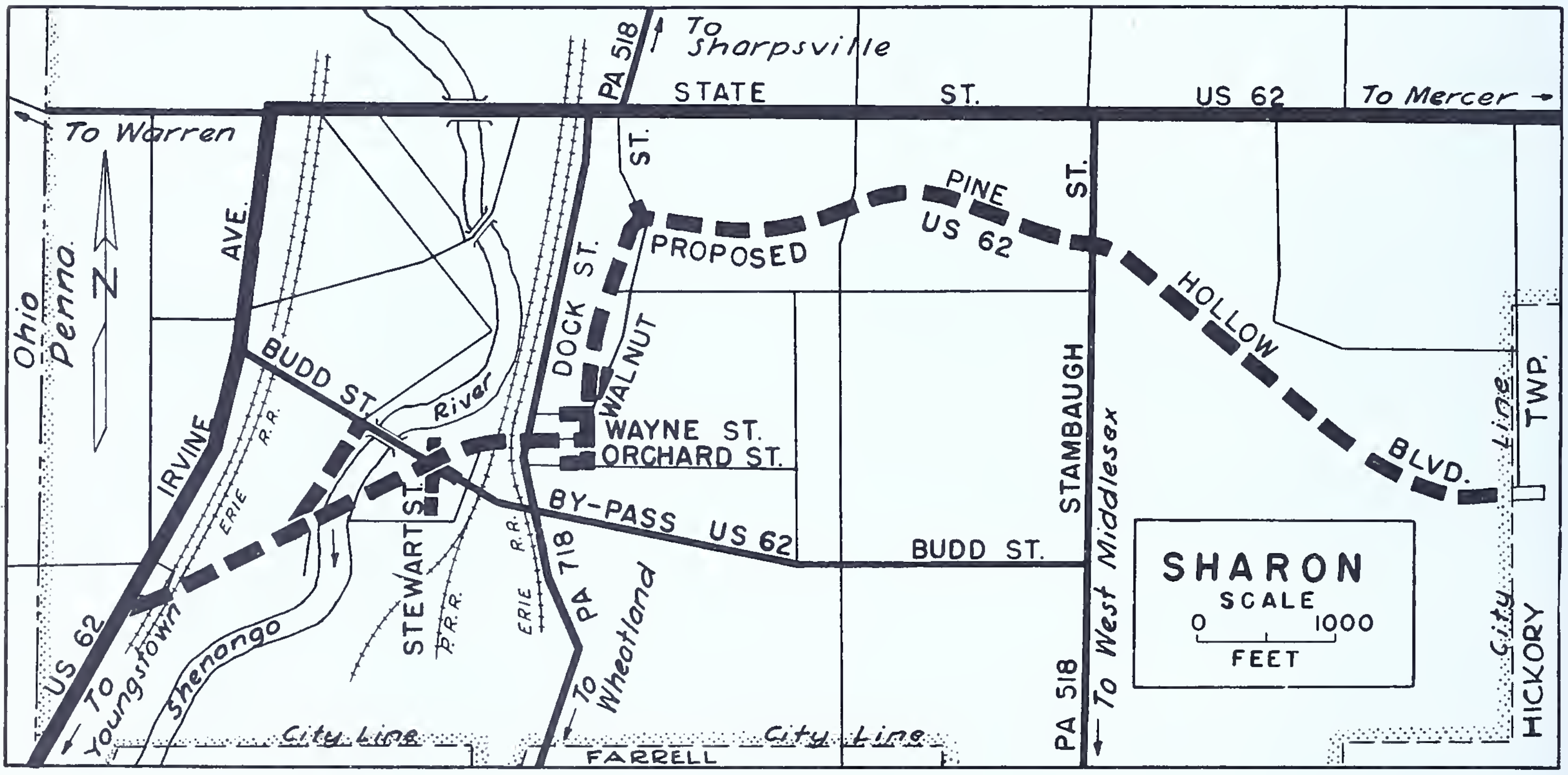
SHARON

Relocation of U. S. 62

To reduce congestion on the city streets, minimize railroad crossing hazards, reduce grades and relieve the bridge inadequacy across the Shenango River, a new location of U.S. 62 is recommended. (See map.) This necessitates two new railroad overpasses - one 300 feet long and one 480 feet long. Between these structures a new viaduct, approximately 220 feet long, will be required over the Shenango River.

From Walnut Street to the eastern city line the proposed improvement would be known as the Pine Hollow Boulevard. An extension of this improvement into the township would connect with U.S. 62 at its present intersection with Pa. 18.

It is expected that this improvement eventually will accommodate over 11,000 vehicles per day. It should be built with four lanes in Sharon and two 12-foot lanes in the adjoining township, with adequate right-of-way for two additional lanes later.

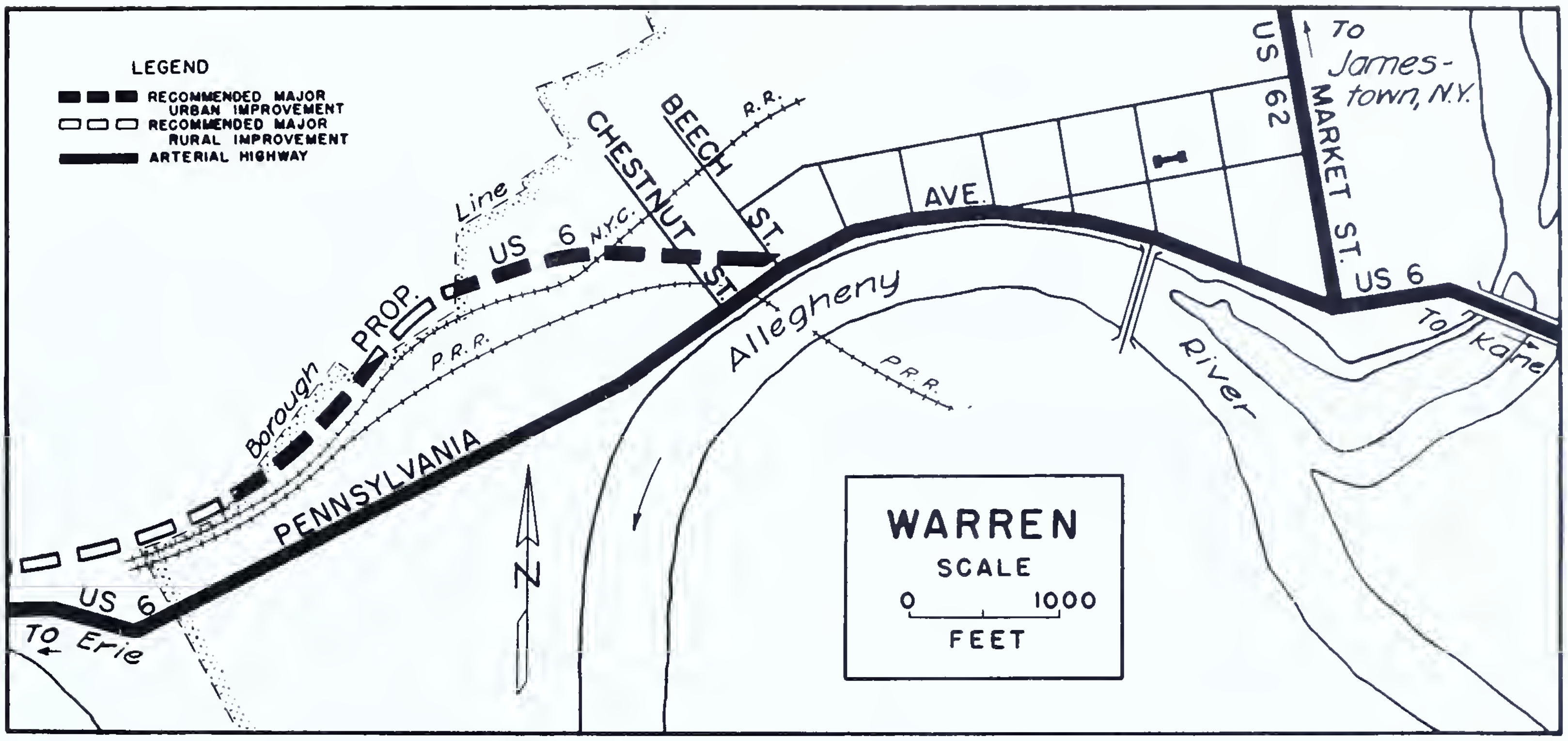


WARREN

For seven miles from Warren toward Erie, U.S. 6 crosses the Pennsylvania and New York Central Railroad tracks five times and is used daily by 4,500 to 5,000 vehicles. All U.S. 6 traffic on Pennsylvania Avenue in Warren must cross the Pennsylvania Railroad at grade. By 1962, traffic is expected to approach 7,000 cars per day.

Relocation of U. S. 6

U.S. 6 should be relocated beginning at Beech Street and Pennsylvania Avenue. By crossing the block between Beech and Chestnut Streets diagonally to the west and by providing a bridge over Fourth Street and the New York Central Railroad, U.S. 6 may remain entirely on the north side of both railroads and also avoid the Pennsylvania Railroad grade crossing in Warren. The present roadway in adjacent townships may continue to be a part of U.S. 6 in places where it is suitably located and can be widened. The balance of this seven-mile section may continue to serve for access to adjacent property.

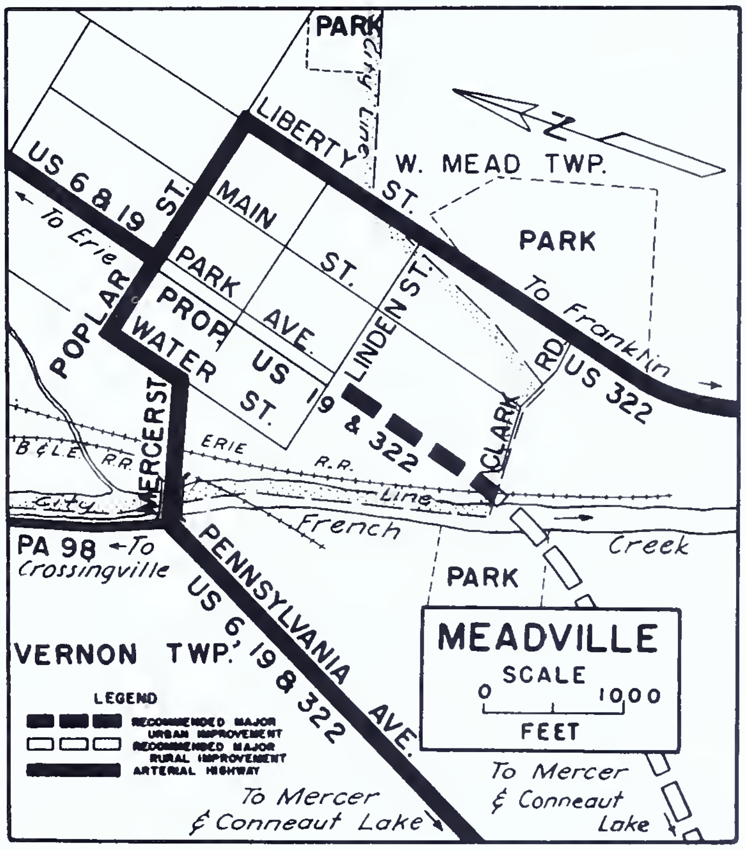


MEADVILLE

Relocation of U. S. 19 and U. S. 322

The south entrance to Meadville on U.S. 19 and 322 bottlenecks at the Mercer Street Bridge and a railroad grade crossing.

It is proposed that U.S. 19 and 322 be relocated and turns eliminated by following Park Avenue to Linden Street, to a ramp connection and a new bridge and viaduct 774 feet long crossing over the Erie Railroad and French Creek. The new location should continue in Vernon Township for 1.7 miles and connect with the present U.S. 19 to the west. It is expected that this improvement will carry traffic reaching 12,000 vehicles per day. This should be a four-lane divided highway.



WILLIAMSPORT

To relieve a serious bottleneck between High and Market Streets on U.S. 220, U.S. 15 and Pa. 14, through Williamsport, a grade separation of Hepburn Street and a direct connection between High Street and Washington Boulevard are proposed. This project is of major importance, despite its shortness.

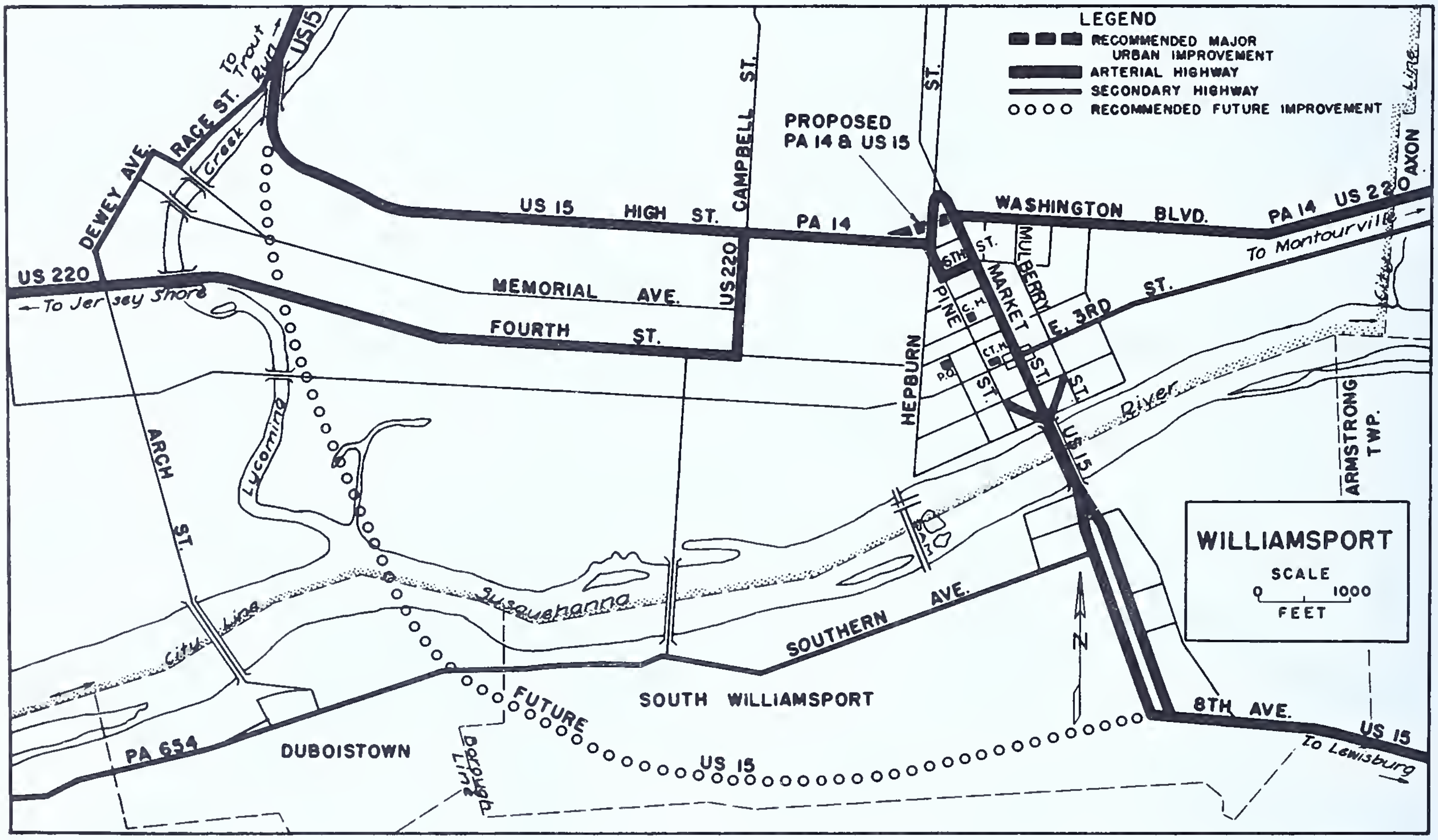
The map shows the situation and the significance of the project. This section is expected to accomodate an estimated annual daily traffic of 8,000 vehicles by 1962.

Future U. S. 15 By-Pass

The streets of Williamsport's central business district are fast becoming overcrowded. Any effort to distribute traffic and relieve congestion by rerouting on one-way streets will provide only temporary remedies.

The Commission recognizes the inevitable need for a by-pass for U.S. 15 so that traffic from the north, south, and west wishing to avoid this busy area may do so. Such an improvement is recommended to be undertaken at some time after 1962 when conditions require.

A complete study of traffic volumes and habits will determine the details of the design required. The map shows a suggested location for such an improvement through South Williamsport, Duboistown and Williamsport. Such an improvement should provide for an interchange with U.S. 220 within the flood protection zone near the Municipal Golf Course. It also should avoid any railroad grade crossings.



SUNBURY

The routing of U.S. 122 through Sunbury utilizes Market Street through the business district which is overtaxed. In places it has deficient width, steep grades and poor alignment. It also encounters an underpass beneath the Pennsylvania and Reading Railroad tracks which is only two lanes wide.

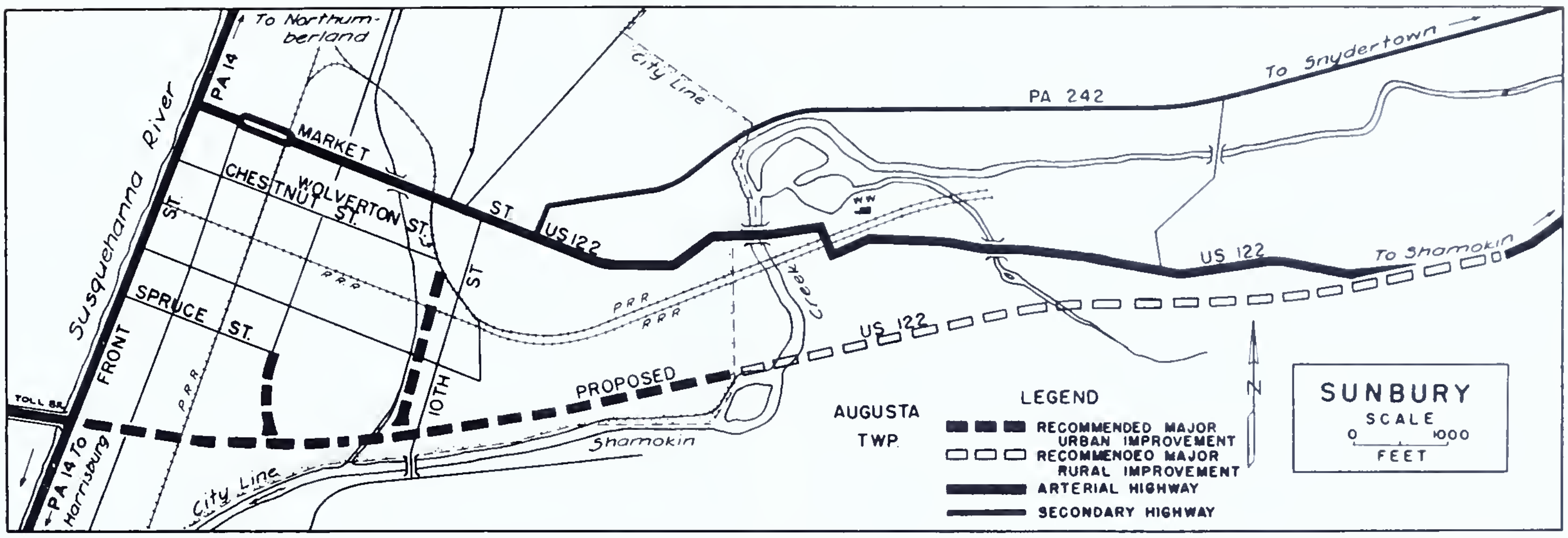
It is impractical to widen Market Street or improve its alignment. Sunbury's street system provides no potential routing for U.S. 122 which would permit through traffic to move without interference by local congestion.

Relocation of U. S. 122

The map shows a proposed relocation which would enter Sunbury more to the south and would offer the advantages of good alignment, good grade, free movement for through traffic, elimination of interference with the Reading Railroad, a direct connection with the bridge across the Susquehanna and a connection with Pa. 14 to points north and south on the east side of the river.

It is recommended that this thoroughfare be made 120 feet wide, that the pavement be made three lanes in width and provision be made for ramp connections to provide quick entrance into the central city.

An extension to this relocation further to the east to connect with U.S. 122, will eliminate complications on the present U.S. 122 in the township.



SHAMOKIN

U.S. 122 within Shamokin now serves an average daily traffic approaching 10,000 vehicles. The present route is inadequate in width and alignment.

Any correction of inadequacies in Shamokin must be made in conjunction with remedying a similar problem through adjacent Coal Township. A four-lane divided highway leads to the western Coal Township line, while the present width through Coal Township varies from 18 to 34 feet.

Proposed Trunkline Study

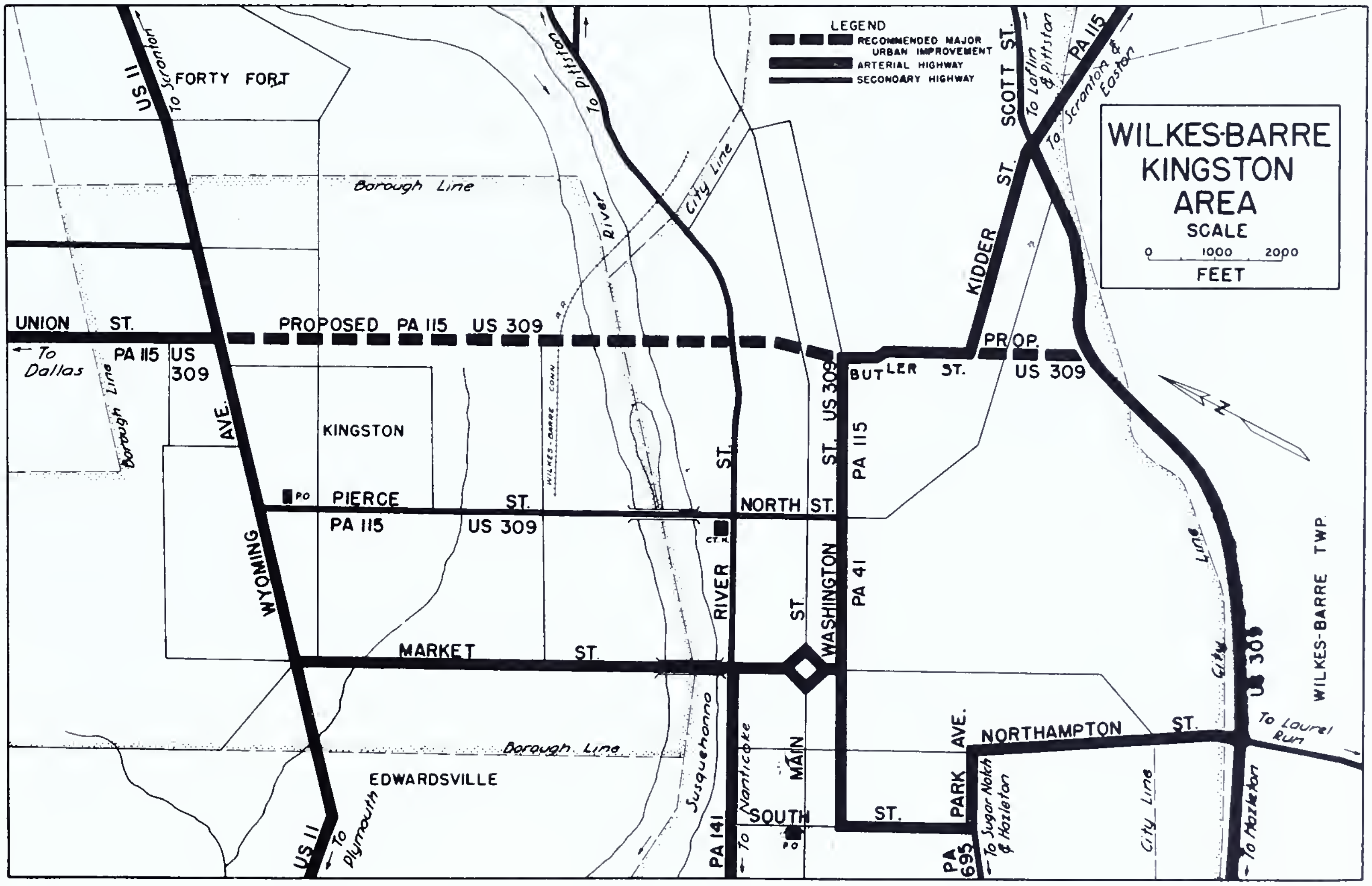
Extended studies should be made to develop a suitable plan for a Trunkline. They should decide the extent to which any railroad relocation should be made, including possible common trackage for both railroads.

Since more extended studies are needed than were feasible for this Commission, no plan or map indicating a solution is offered in this report--nor is a specified project for this purpose included in the Commission's proposed program.

WILKES-BARRE AND KINGSTON AREA

Traffic congestion in central Wilkes-Barre is acute.

The four principal arterial highways (U.S. 11, U.S. 309, Pa. 115 and Pa. 315) carry from nearly 7,000 to 12,400



vehicles a day at their intersections with either the city line of Wilkes-Barre or the borough line of Kingston. The map of this area shows the significance of these figures.

Proposed North-South Route

A direct north-south route through both Kingston and Wilkes-Barre is recommended following approximately the location shown. Adequate surface support will require some acquisition of coal reserves, since it would not otherwise be assured of support throughout its entire length. It would include a new four-lane, high-level bridge across the Susquehanna River at Courtright Street with a high-level approach which will separate traffic from L.R. 5 (River Street) and provide an easy connection with north Main Street to the central business district in Wilkes-Barre.

There should be a direct connection with the Butler Street viaduct and a direct connection with the Wilkes-Barre By-Pass (now U.S. 309), thus affording a route free from Wilkes-Barre congestion to Hazleton and points south. A new underpass beneath the Wilkes-Barre Connecting Railroad would be provided.

Such an improvement will help Pa. 115 traffic. It too may go through Wilkes-Barre and Kingston with minimum interference and yet have the advantage of easy access to other parts of Wilkes-Barre and Kingston.

The results of the origin and destination study (now in process) of traffic in this area, when known, will provide a basis for cost determination. It is recommended that this project be undertaken as soon as circumstances permit, and be based on the conclusions of the traffic study.

HAZLETON

Three main Trunklines (Pa. 29, Pa. 924 and U.S. 309) converge on Hazleton. Traffic on them ranges from 4,800 to 10,000 vehicles per day at the city line.

They pass over streets as narrow as 22 feet. Nine railroad tracks must be crossed at grade. Two busy street intersections with traffic lights delay Trunkline traffic. There are steep grades near the northeastern city line.

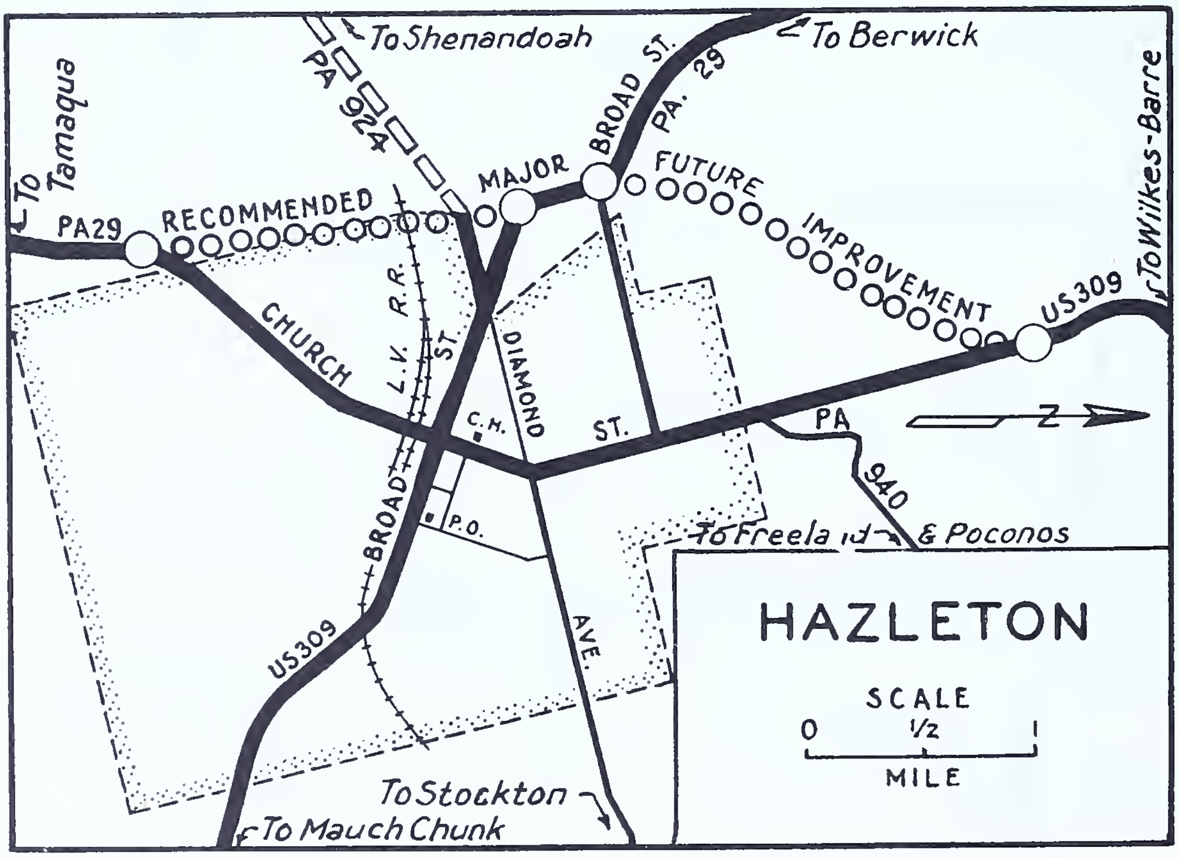
Proposed By-Pass

A by-pass beginning near the western city line (shown on map) would use Broad Street for a short distance and then follow an unpaved street (having adequate width) for a short distance. This by-pass would then follow an entirely new location and would connect with U.S. 309 to the north. An existing street in West Hazleton approaching Broad Street from the south also should be widened. A desirable right-of-way, with the exception of two short blocks in West Hazleton, should be inexpensive.

Such a by-pass would provide good grades and alignment, freedom from local traffic interference, no grade crossings, better connection for traffic using Pa. 29 to the north and relief of congestion on Church Street.

It would avoid the necessity of exorbitant property damages and disturbing of adjacent property by widening Church Street and would leave the present facility undisturbed for local traffic.

The Commission recommends that a detailed traffic survey be made to determine the traffic pattern which would result from such an improvement. On this study, together with a detailed survey, the final conclusions as to feasibility, design and cost should be based.



WILKES-BARRE AND SCRANTON AREA

U. S. 11 and Pa. 315

U.S. 11 is unfortunately located and is called upon to accommodate not only the north-south Trunkline traffic, but the local inter-urban traffic as well.

So long as the present routing of U.S. 11 follows its present location it will be impossible to develop it to meet Trunkline needs. Through traffic has already given up this route through Scranton as far as possible because of excessive grades and indirect alignment. Heavy congestion also occurs on many parts of Pa. 315.

U. S. 11 Improvements

The intersecting Wyoming and Lackawanna Valleys with their several urban communities require two well designed Trunkline highways (one along each side of these valleys) if traffic is to be accommodated adequately. Strategic spur connections leading conveniently into or through business centers should be provided where justified. Supplementing this Trunkline System, the Intercommunity System of roads or streets will easily handle all local traffic, since through traffic will then use the Trunkline routings.

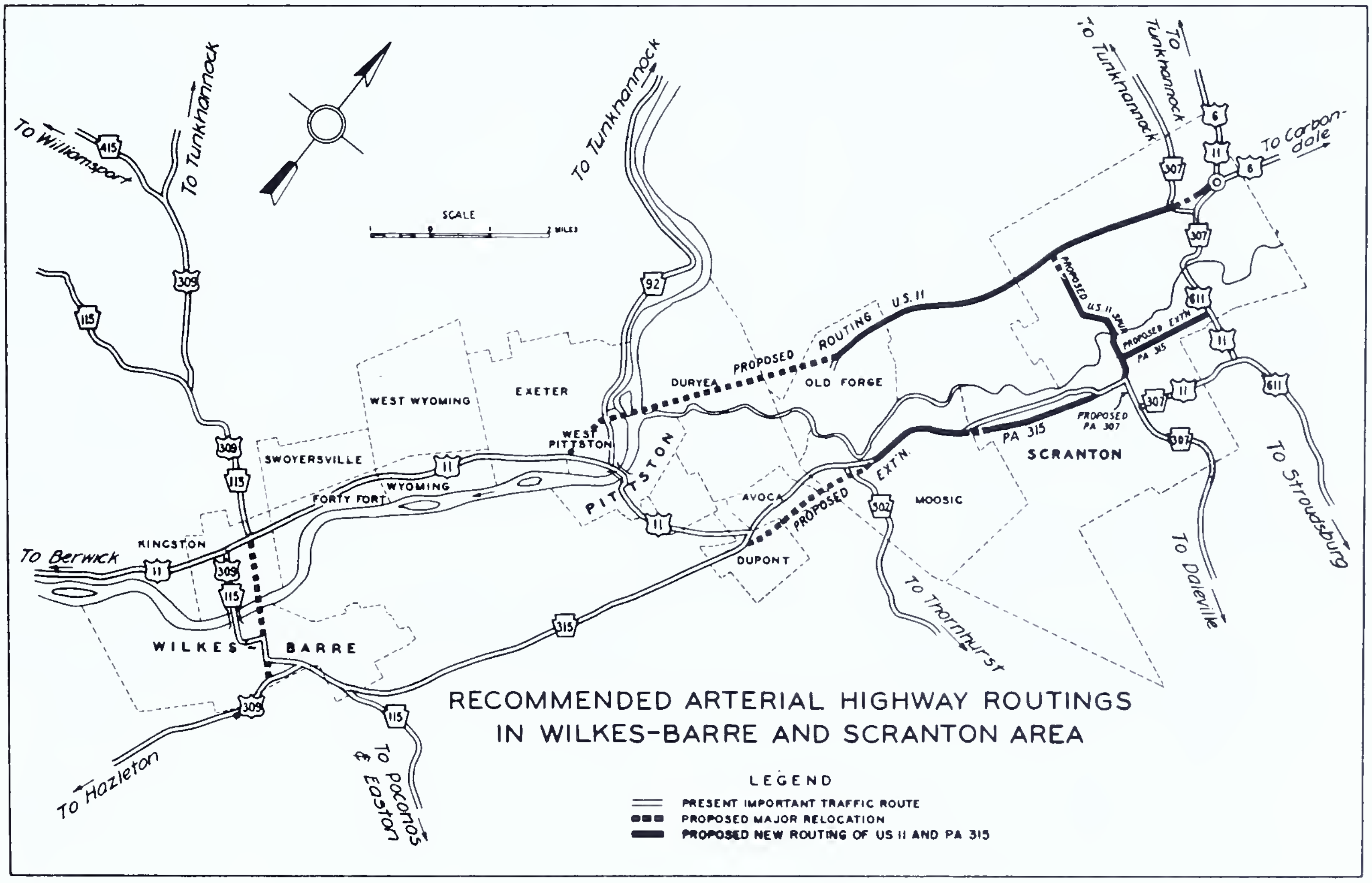
It is recommended that U.S. 11 continue over Wyoming Avenue from Kingston at West Market Street (which leads into the central Wilkes-Barre business district) to West Pittston. At least a four-lane street with direct alignment is available within these limits. Beginning at the junction of the Exeter and West Pittston borough lines it is recommended that U.S. 11 by-pass Pittston in a northeasterly direction, cross the Susquehanna River at Scovil Island and continue to the traffic circle in north Scranton, with a 36-foot pavement. Connections with the proposed Pa. 315 Extension located along the southerly edge of these valleys are entirely feasible by using inter-community roads.

A direct entrance into central Scranton by means of a spur over Washburn and other streets, as shown on the Wilkes-Barre and Scranton area map, will afford good grades and tolerable pavement widths. This spur would connect with the proposed Pa. 315 extension at Lackawanna and Wyoming Avenues in Scranton.

These improvements would facilitate traffic movements through the business district to the south and to the northeast by way of the Proposed Pa. 315 Extension over Wyoming Avenue to its intersection with U.S. 611 (Green Ridge Street).

Pa. 315 Improvements

Pa. 315 through portions of Dupont, Avoca and Moosic is recommended for widening and relocation. Such an improvement will give excellent access to the Scranton-Wilkes-Barre Airport. From the proposed intersection of Pa. 315 with Pa. 502 to the Scranton city line the present U.S. 11 (a four-lane highway here) will adequately accommodate Wilkes-Barre and Scranton traffic. From the Scranton city line it is recommended that the proposed Pa. 315 Extension



RECOMMENDED ARTERIAL HIGHWAY ROUTINGS IN WILKES-BARRE AND SCRANTON AREA be diverted to Pittston Avenue by means of a new but short connection at Railroad Street. Pittston Avenue (at least 40 feet between curbs) should be repaired from the Scranton city line to Saginaw Street. An improvement in grade at O'Hara Street within reasonable cost is also recommended.

It is recommended that the Pittston Avenue and Front Street intersection be widened to harmonize with a recommended flaring of the first span of the Spruce Street Bridge. The balance of the bridge (34 feet wide) is believed to be satisfactory.

Widening is recommended at the intersection of Spruce Street and Jefferson Avenue to facilitate a left turn toward Lackawanna Avenue. Lackawanna Avenue is satisfactory as a Trunkline connection through central Scranton to Wyoming Avenue where it would connect with the U.S. 11 spur from the north side of the Lackawanna Valley.

The recommended changes would provide a direct routing to the Poconos either by Pa. 307 or U.S. 611. Indeed, a direct routing in all directions for Trunkline highway traffic to or from Scranton would be reasonably convenient when these recommendations are effected.

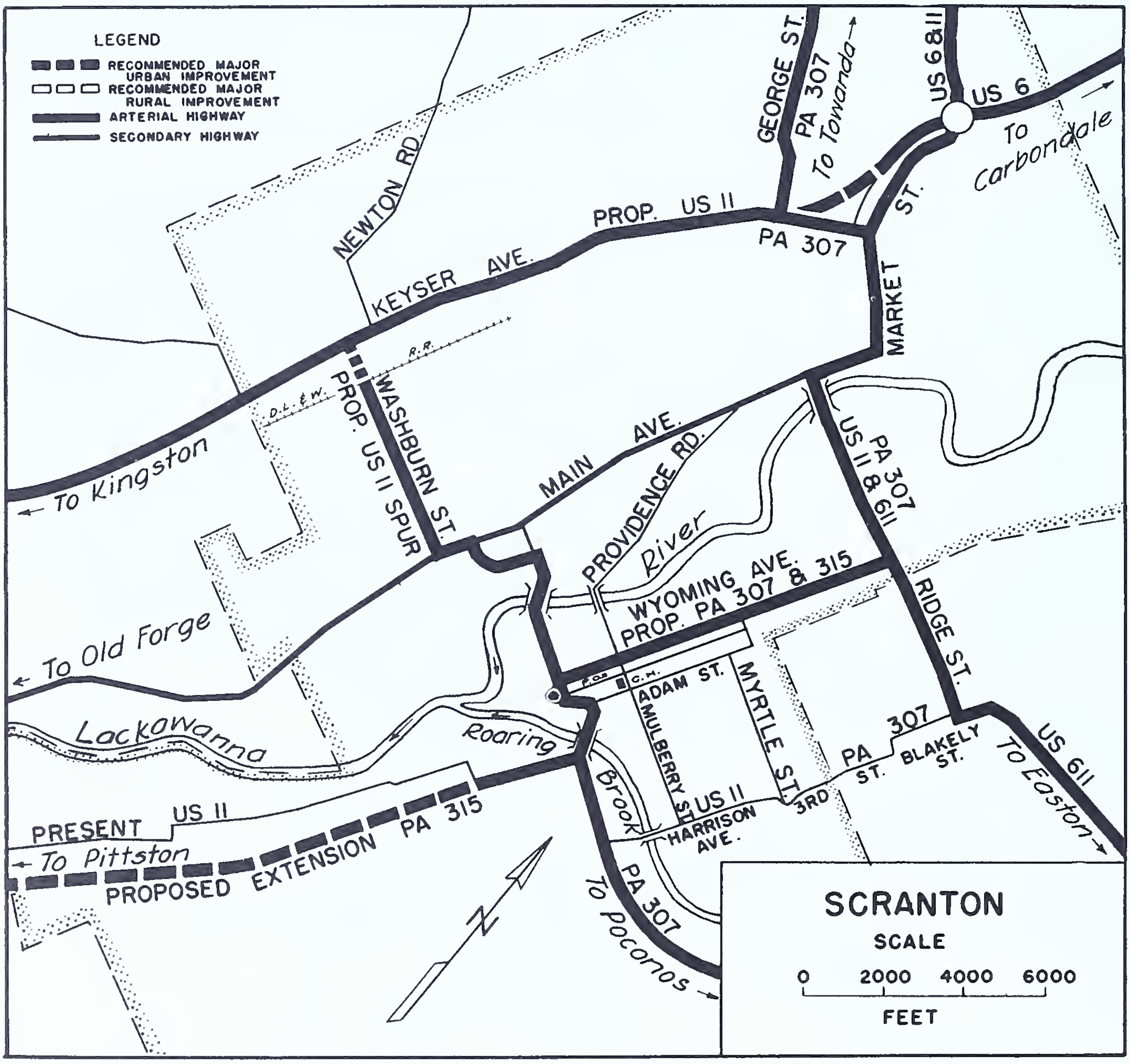
SCRANTON

Because of the recommended new routing of U.S. 11 over Keyser Avenue through Scranton, an adequate spur connection to the central city area is essential. Washburn Street, logically an important part of such a spur connection, falls short of making a direct connection with Keyser Avenue by 1,100 feet, with the result that traffic desiring to reach the central city will be required to use an indirect routing over two inadequate streets with sharp turns and poor grades.

Proposed Improvements

Washburn Street should be extended from the overhead railroad bridge to Keyser Avenue, having a pavement width of 44 feet.

A direct connection should be provided between Keyser Avenue (proposed U.S. 11) and the traffic circle in north Scranton, from which U.S. 11 satisfactorily continues toward Binghamton, New York. At present such a connection is afforded only by the Keyser Avenue Extension and Oak Street - neither of which is capable of appropriately serving a Trunkline highway.



ALLENTOWN-BETHLEHEM-EASTON AREA

To relieve acute traffic congestion in the Allentown-Bethlehem-Easton area, by-passes are needed for U.S. 22 which concerns all three cities, U.S. 309 which mostly concerns Allentown and U.S. 611 which concerns Easton. (See map.)

In times of emergency the arterial traffic flow would suffer critically in this area because of the congestion in each of the three cities due to the inadequate capacity and unsatisfactory location of these strategic Trunklines.

Proposed U. S. 22 By-Pass

From the west U.S. 22 passes through central Allentown and thence to Easton. An alternate two-lane route is provided from Main Street over East Union Street to Linden Street, thence over Penbrook Road (two paved lanes) to Easton.

Through central Easton U.S. 22 continues down Northampton Street to Seventh Street, thence U.S. 22 Alt. continues directly ahead to the central city traffic circle, and on over the free bridge to Phillipsburg. U.S. 22 diverges to the left crossing the toll bridge over the Delaware River.

The average daily traffic flow on Tilghman Street (only 36 feet wide) in Allentown near Seventh Street was well over 17,000 vehicles in 1949. A comparable situation exists on West Union Boulevard near Bethlehem. There are sharp rolling grades between Bethlehem and Easton. Free traffic movements are virtually impossible during the day.

A limited-access four-lane divided by-pass should be provided as soon as possible for U.S. 22 around Allentown and Bethlehem and a new approach to the toll bridge over the Delaware River constructed through Easton.

Proposed U. S. 309 By-Pass

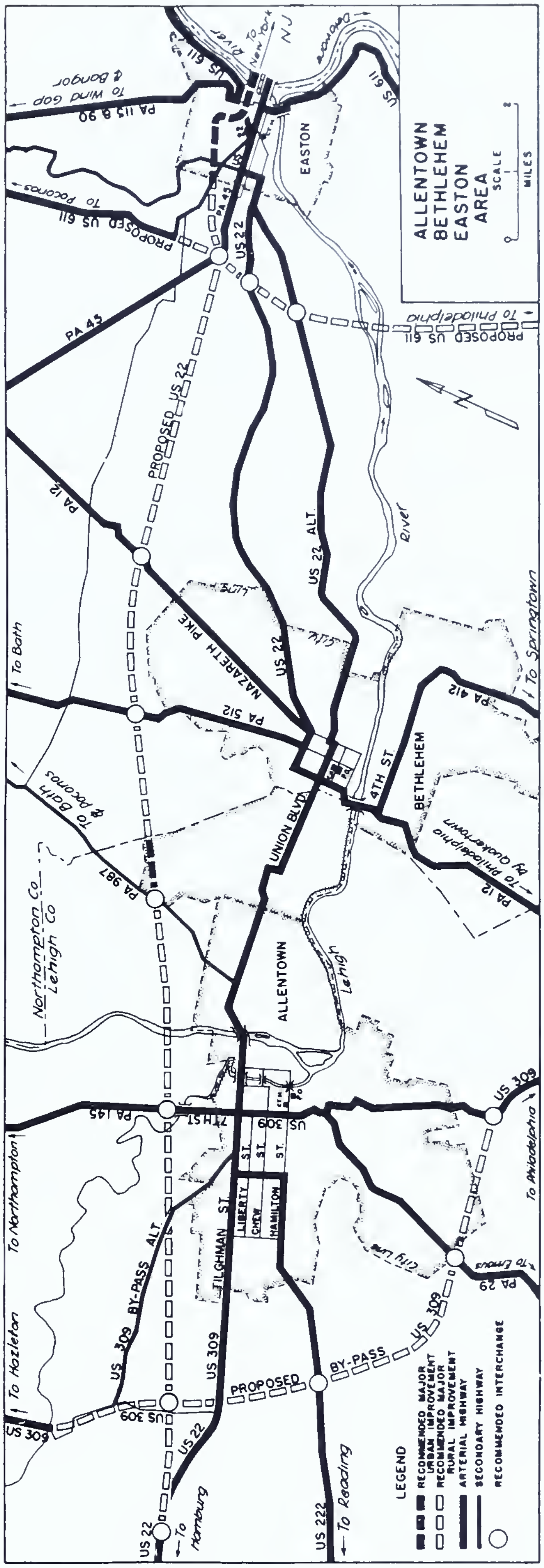
The routing of U.S. 309 through Allentown is indirect and has unsatisfactory grades, which contribute greatly to the over-crowded traffic conditions in the central city. At the south city line traffic was approximately 9,300 vehicles per day in 1949.

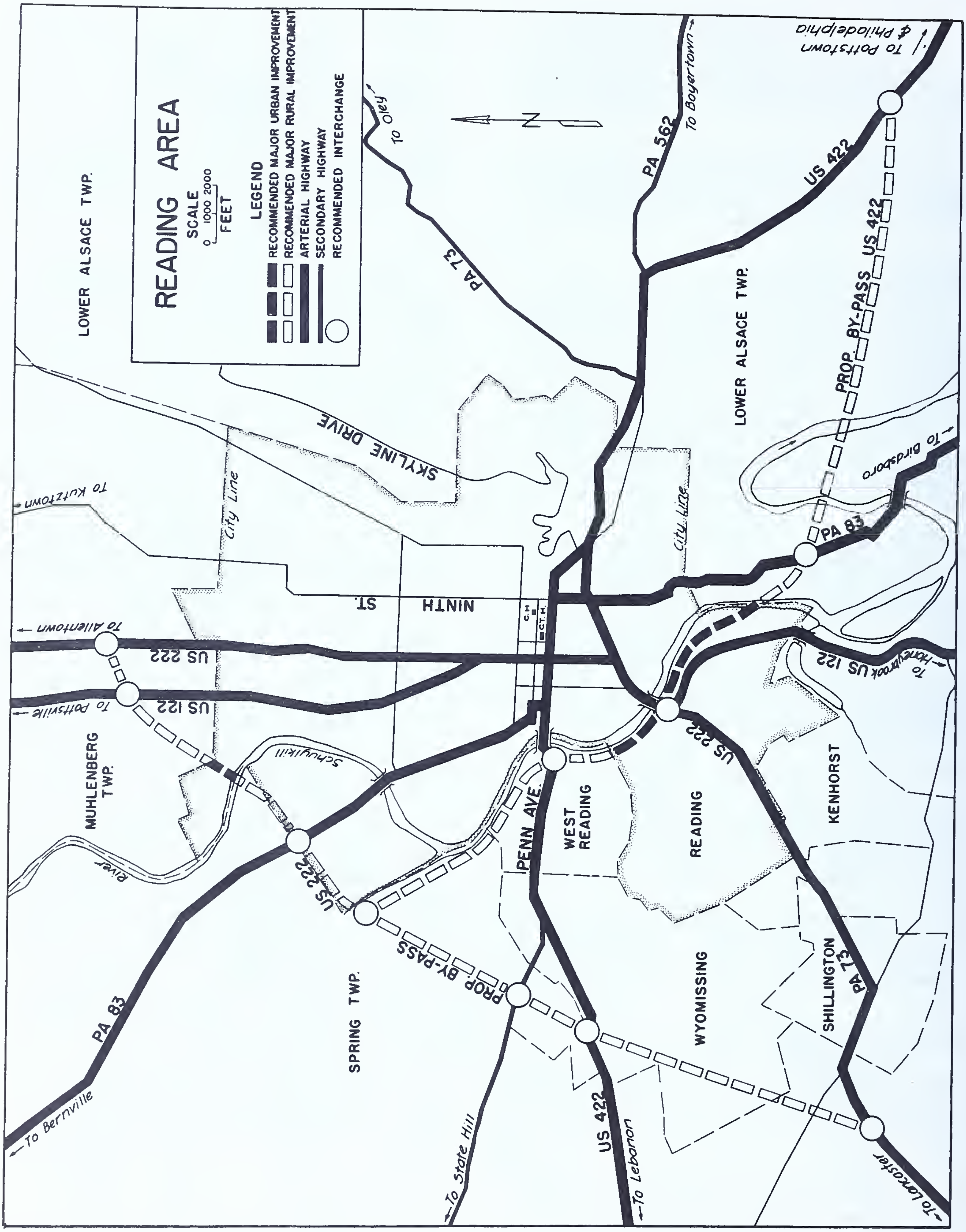
A limited-access by-pass (two-lane highway with a four-lane right-of-way) should be provided for the through north-south traffic on U.S. 309 to avoid the necessity of passing over the busiest streets in Allentown's business district.

Proposed U. S. 611 By-Pass

In downtown Easton the traffic situation is acute. Greater distribution by using parallel streets is virtually impossible. The Trunkline traffic load of U.S. 611 (and also U.S. 22) pours into a street system scarcely adequate for today's local traffic.

A three-lane by-pass should be provided for U.S. 611 to relieve the local street situation in Easton and to escape the acute congestion on the present U.S. 611 along the Delaware River south of Easton. The situation is impractical to correct on its present location.

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To Oley
PA 73
PA 562
To Boyertown
US 422
To Pottstown & Philadelphia
LOWER ALSACE TWP.
PROP. BY-PASS US 422
SKYLINE DRIVE
City Line
City Line
To Kutztown
To Birdsboro
PA 83
NINTH ST.
C.H.
CT.H.
US 222
To Allentown
US 122
To Pottsville
US 122
To Honeybrook
MUHLENBERG TWP.
Schuylkill
River
PENN AVE.
WEST READING
READING
KENHORST
US 222
US 222
SPRING TWP.
PROP. BY-PASS
WYOMISSING
SHILLINGTON
PA 73
PA 83
To Bernville
To State Hill
US 422
To Lebanon
To Lancaster

READING AREA

The major highways entering Reading cannot adequately serve Trunkline traffic going through the city. Parallel street routing has been used as much as possible. Still local traffic interference is encountered. Converging on Reading from several directions are four Trunkline highways with an average daily 1950 traffic at the city line as high as 24,000 vehicles. A major departure from the existing street system is required to relieve overcrowding, delays and hazards.

Proposed North-South and East-West By-Passes

As the Reading map indicates, relief can only be found adjacent to the city by two by-passes with interchanges with radial Trunklines to provide for the future. They are:

1. A North-South By-Pass through or adjacent to Reading's suburban area to the northwest, west, and southwest, intersecting the converging Trunklines from these directions. It would connect U.S. 222 on the north with the same route to the south.
2. A similar East-West By-Pass connecting with the North-West By-Pass west of Reading and intersecting other converging Trunklines from the west, southwest, south, and U.S. 422 from the east before they enter restricted areas.

In effect, these proposed facilities would form a circumferential multiple four-lane limited-access highway around the area of Reading's greatest concentration of of commercial activity.

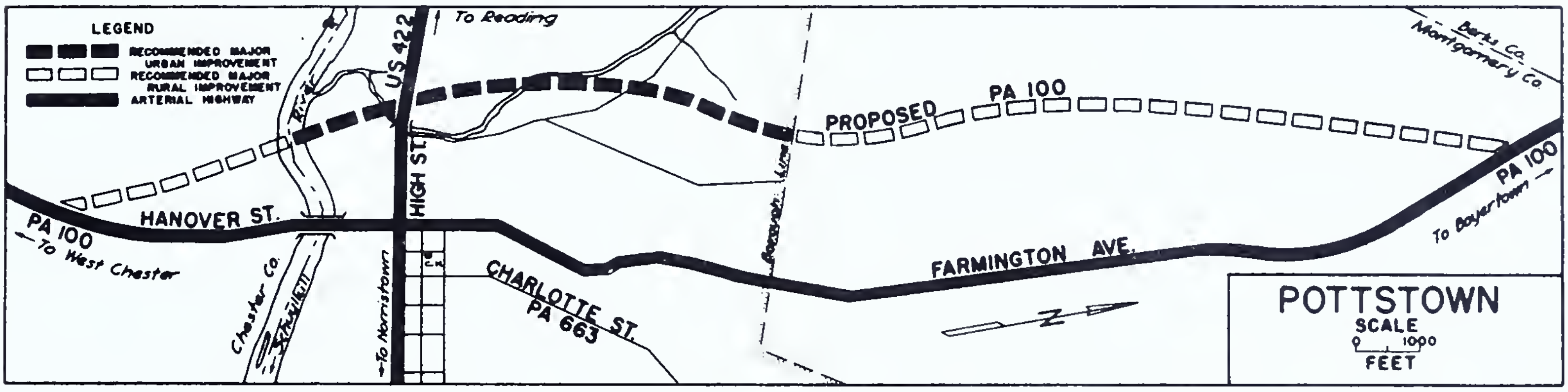
POTTSTOWN

Pa. 100 connects Wilmington, Delaware, on the south with Allentown on the north passing through West Chester, Pottstown, and Boyertown and connecting with several of the most important east-west Trunklines, including the Pennsylvania Turnpike at Eagle. The average daily traffic on the south approaches 7,200 vehicles, which added to local traffic in the commercial district, causes severe congestion. Entering Pottstown, Pa. 100 crosses the Schuylkill River on a bridge having the very inadequate roadway width of 18½ feet.

Proposed Pa. 100 By-Pass

The Commission believes that a by-pass will divert all through traffic and relieve the present difficult routing through the commercial district. (See map.) It will require a new four-lane bridge across the Schuylkill River.

The by-pass should extend well beyond the corporate limits to the south and north. The total length of such a by-pass would be approximately 4.6 miles, of which 1.3 miles would be in Pottstown, with grades and alignment greatly superior to the present route.



PHILADELPHIA AREA

An adequate highway system in the Philadelphia area cannot be satisfactorily planned without due coordination of needed major improvements and their proper synchronization. Any attempt to solve a suburban traffic problem without adequate provisions for its urban effect (or vice versa) will prove unsatisfactory.

Radial, arterial and multiple-lane highways, largely having limited-access characteristics, need to be completed through this area. Other supplementary and circumferential or belt-line highways of similar design must be undertaken to assure a free flow of traffic along the major "desire lines." This study does not pretend to answer all highway problems needing attention in this area. Only the more important improvements can be undertaken at first in answer to the most urgent needs. Others should follow according to orderly planning. Some will demand attention beyond this 12-year program.

Nine major projects are discussed here. They include projects in the four suburban counties as well as the major projects proposed for consideration within Philadelphia.

Turnpike Extension—
Valley Forge and Schuylkill Expressways

The completion of the Eastern Extension of the Turnpike will deliver and attract a large average daily traffic volume at its King of Prussia terminus. No adequate highway artery exists from this terminus into Philadelphia. A four-lane divided limited-access highway (Valley Forge Expressway) should be built to deliver traffic to the city line. From this point an extension (Schuylkill Expressway) should be built through Fairmont Park and along the west bank of the Schuylkill River in order to deliver this traffic to important and logical distributing points as far as the University Avenue Bridge. Interchanges should be provided at City Line Avenue, Roosevelt Boulevard Extension, Girard Avenue, Vine Street Extension, Pennsylvania Avenue at 30th Street, and University Avenue. Such an improvement will provide free movement of expressway traffic to or from important areas and arterial highway routes within or beyond Philadelphia.

Arrangements have been concluded between the Department of Highways and the City of Philadelphia which warrant the undertaking of construction drawings for the Schuylkill Expressway without delay. Portions of the Valley Forge Expressway to city line are already under contract. Plans for the remaining sections are being expedited to hasten the letting of additional contracts required for its completion. These expressways should be completed as soon as practicable.

Vine Street Extension and Expressway Interchange

The Vine Street approach to the Delaware River Bridge now is largely under contract, except the section between 15th Street and the Schuylkill Expressway. The Expressway must pass under the Benjamin Franklin Parkway at Logan Circle to avoid excessive traffic interference. Approaches to the underpass should be depressed below present street grades. A bridge over the Schuylkill River will merge with an interchange with the Schuylkill Expressway Interchange on the west bank.

This improvement will not provide for Pennsylvania Turnpike and Delaware River Bridge traffic, until the Valley Forge and Schuylkill Expressways are both in service. Also those Expressways will be inadequate until the Vine Street Extension and its interchange with the Schuylkill Expressway are completed.

It is recommended that this project be put under way as soon as circumstances permit. If at all possible it should be available for use as soon as the Expressway approaches are completed.

U. S. 1 By-Pass—Blackhorse Interchange to New Delaware River Bridge at Morrisville

Five major improvements are recommended on this route between its termini. These will provide an inner bypass route west of Philadelphia and through northern Philadelphia for northeast-southwest traffic. They are:

1. The Black Horse Interchange to Upper Darby Township line, by-passing Media to the north via the general location of Pennsylvania Leg. Routes 23030 and 23031 - 6.2 miles. It should be relocated north of Media to connect directly with the City Line Avenue Extension (Township Line Road). It should be a four-lane divided highway with adequate right-of-way for future expansion. In view of other improvements planned, it is expected that this artery will carry 10,000 vehicles per day.

2. Roosevelt Boulevard Extension in the City of Philadelphia from Schuylkill Parkway Interchange to Wingohocking Street and Roosevelt Boulevard via Abbottsford Avenue, Fernhill Park, and Cayuga Street - a four- and six-lane divided expressway on new location with limited access - 3.5 miles. Its completion should be coordinated with the scheduling of the Schuylkill Expressway with which it is integrated. Traffic studies indicate that if the facility were now available, it would be used by 20,000 vehicles per day.

3. The Roosevelt Boulevard improvement in Philadelphia from Tenth Street to Oxford Circle, consisting of widening bridges and overpasses, eliminating a railroad grade crossing and reconstructing roadways.

   The ultimate plan as prepared and agreed to by the Department of Highways and City of Philadelphia calls for two 35-foot roadways for through traffic, separated by an 80-foot planted divisor. Beyond these through traffic roadways would be 11-foot planted divisors followed by 34-foot service roadways beyond which would be 30-foot sidewalk areas. This parkway plan now exists between Oxford Circle and Pennypacker Circle but an entirely different layout exists between Tenth Street and Oxford Circle.

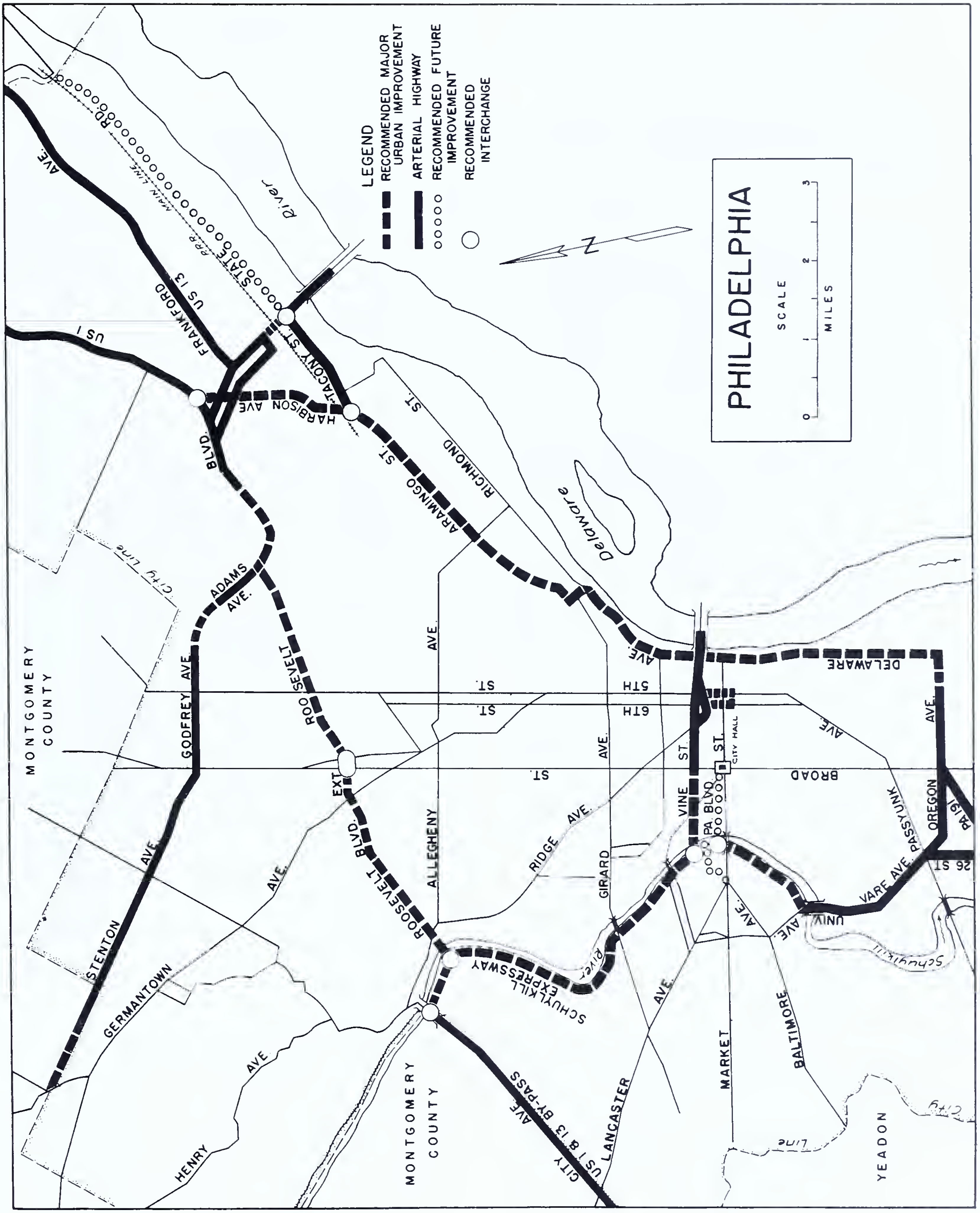
4. U.S. 1 from Langhorne to Falsington, Bucks County, through Middletown and Bristol Townships on new location - a four-lane divided highway - 3.5 miles. U.S. 1 in Bucks County, east of Langhorne, has a right-of-way width inadequate for further expansion. The present 44-foot pavement is undivided, has somewhat inferior alignment and is estimated to require replacement within 10 years.

   A four-lane divided highway extends east from Langhorne for a short distance on a very desirable location for the ultimate U.S. 1. By utilizing this pavement (now little used) and by relocating U.S. 1 the remaining 3.5 miles, a wide right-of-way on superior alignment may be secured at reasonable cost with provision for a six-lane divided pavement when needed.

5. West borough line of Morrisville to the proposed Interstate Bridge over the Delaware River on a new location - a four-lane divided highway - 0.9 miles needs to be improved.

   A new bridge across the Delaware River from Morrisville to Trenton, New Jersey, located between the present Route U.S. 1 bridge and the Pennsylvania Railroad Bridge, is to be undertaken by the Delaware River Bridge Commission. A new approach will be required. The present U.S. 1 through Morrisville is congested with well developed properties adjacent on both sides. Expansion of the present routing to give suitable access to the new bridge is impractical.

   By using a parallel location to the south of the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MONTGOMERY COUNTY
YEADON
City Line
City Line
Delaware
River
Schuylkill
River
FRANKFORD AVE.
US 13
US 1
STATE RD.
P.R.R. MAIN LINE
TACONY ST.
HARBISON AVE
BLVD.
ARAMINGO ST.
RICHMOND ST.
ADAMS AVE.
GODFREY AVE.
STENTON AVE.
GERMANTOWN AVE.
HENRY AVE.
ROOSEVELT BLVD.
ROOSEVELT BLVD. EXT.
ALLEGHENY AVE.
RIDGE AVE.
GIRARD AVE.
5TH ST.
6TH ST.
BROAD ST.
CITY HALL
VINE ST.
PA. BLVD.
DELAWARE AVE.
PASSYUNK AVE.
OREGON AVE.
PA. 191
26 ST.
VARE AVE.
UNIV. AVE.
BALTIMORE AVE.
MARKET ST.
LANCASTER AVE.
SCHUYLKILL EXPRESSWAY
CITY AVE.
US 1 & 13 BY-PASS

present U.S. 1 an adequate right-of-way is available at reasonable cost, providing for a four-lane divided highway with controlled access. This will harmonize with the newly proposed highway location in Trenton.

It is believed that these improvements connecting as they do with other important Trunklines, will be a vital part of Philadelphia's expressway system in time of peace or war.

Delaware River Expressway from Delaware State Line to Morrisville

This highway passes along the highly developed Delaware River water front from Chester to Philadelphia, and serves a potential water front and industrial area from the eastern Philadelphia city line to Morrisville. Peacetime and wartime necessity for adequate highway facilities having expressway characteristics and strategic connections with arterial routes converging on this area cannot be overemphasized.

The proposed major developments of this expressway are:

1. A limited-access four-lane divided expressway on a new location from the Delaware State line through Chester to connect with the present four-lane divided "Industrial Highway" (part of the Delaware River Expressway) leading to the northeast and giving access to river front industry, the Philadelphia Airport, Philadelphia Navy Yard and the Philadelphia arterial street system - 8.9 miles.

   It is estimated that 14,000 vehicles a day would use this major improvement. At present Trunkline traffic is compelled to use U.S. 13 or U.S. 13 By-Pass over inadequate street facilities in Chester. This Trunkline would enable traffic to move freely both to Chester from the south and to the four-lane divided highway immediately to the northeast by means of the proposed depressed limited-access four-lane divided expressway through Chester (discussed in the subsection on Chester) and its proposed connection with the "Industrial Highway" immediately beyond the city line.

2. An elevated limited-access four-lane divided expressway - 5.6 miles - from Oregon Avenue to Lehigh Avenue via Swanson Street and Delaware Avenue, with frequent access ramps to crosstown arterials. This would serve the well developed water front and adjacent area. It would accommodate an estimated daily traffic of 15,000 vehicles.

   The present thoroughfare along the water front serves a network of railroad freight tracks which lead to the piers. Extensive railroad activity makes this portion of the important marginal highway along the water front a very poor highway artery, as access to the piers along the Delaware River is difficult and tedious. This route also accommodates vehicles seeking access to the eastern area of Philadelphia.

   No surface highway improvement would suffice because of the railroad freight tracks which must remain at street level. The solution is, therefore, construction of an elevated four-lane divided expressway.

3. A six-lane divided surface Trunkline having controlled access from Lehigh Avenue to the Roosevelt Boulevard via Aramingo Street and Harbison Avenue to provide access from the north to an important part of the Delaware River water front and portions of the city adjacent thereto - 5.2 miles.

   From Lehigh Avenue to the northeast, traffic studies indicate a major "desire line" for traffic flow along Aramingo Street to Tacony Street. Here the flow diverges - part of it follows Harbison Avenue to the Roosevelt Boulevard, the other follows Tacony Street to the Tacony-Palmyra Bridge approach and thence to the eastern city line and to Bristol and Morrisville. A crosstown connection from Lehigh Avenue and Aramingo Street to Harbison Avenue and the Roosevelt Boulevard does not now exist since the streets are not entirely opened for use. Yet, this is designated as a State Highway Route in recognition of the need for such an arterial to serve an estimated average daily potential traffic flow of nearly 15,000.

   Traffic to and from northeast Philadelphia now uses Roosevelt Boulevard and North Broad Street. Traffic using U.S. 1 from New Jersey has very limited highway facilities when destined to points along or near the Delaware River water front, to south Philadelphia, and to points beyond to Chester and Wilmington, Delaware.

   This improvement will provide an attractive route between northeast Philadelphia and the Delaware River water front and points further south, including destinations in central and eastern Philadelphia. It will eliminate inadequate links on U.S. 1 in Philadelphia and in Bucks County and will afford a good arterial connection between the older portion of the Delaware River water front and points toward Trenton, New Jersey.

4. A six-lane divided highway from Aramingo Street by way of Tacony Street to the approach to the Tacony-Palmyra Bridge (Levick Street) - 1.4 miles.

   Tacony Street from Aramingo Street to Levick Street (Tacony-Palmyra Bridge approach) is an important link in the proposed Delaware River Expressway. It is inadequate and needs new construction to accommodate an estimated average daily traffic of 11,000 vehicles. This traffic may be expected to increase as completion of the Delaware River Expressway to Morrisville advances and in view of the continued river front and industrial development.

   Completion of this project should not postdate the completion of the Aramingo Street and Delaware Avenue elevated expressway more than circumstances require. Cross-river traffic to and from Palmyra, New Jersey, should have advantage of its use when its connections are completed.

5. An extension of the Delaware River Expressway by developing State Road within Philadelphia to the Bucks County line, into a depressed six-lane divided expressway - 4.3 miles.

   The immediate urgency for the Delaware River Expressway improvement from Levick Street (Tacony-Palmyra Bridge) to the Bucks County line by way of State Road is relieved by the present location of U.S. 13 - the paved width of which varies from 50 to 64 feet. Up-river traffic now may enter or leave Philadelphia by means of U.S. 13 which is recommended to become a four-lane divided highway continuously to Bristol. This portion of the Expressway is not proposed to be undertaken within 12 years, but plans should be made so that it may be undertaken as soon as circumstances require.

   When scheduled river front developments in Bucks County have advanced to the point where required additional expressway facilities are immediately foreseen, they should be provided and integrated with the Delaware River Expressway. It is expected that by 1962, 15,000 vehicles a day will be using this Expressway.

6. Improvement of State Road (Delaware River Expressway) within Bucks County to Neshaminy Creek, connecting with U.S. 13 near Bristol and the approach to the Bristol toll bridge - 6.7 miles.

   This extension of State Road (Leg. Route 09001) from the Philadelphia city line has a status similar to the project already discussed. (See 5. above.) It would become a part of the Delaware River Expressway from the Delaware State line to Morrisville, Pennsylvania, and is expected to carry 10,000 or more vehicles per day when constructed.

   This 6.7 mile section of the proposed Delaware River Expressway is not included in the 12-year program but should be constructed as soon as its need is foreseen. Plans for its construction should be based on the expectation of its urgency within the next 12 or 14 years when the parallel U.S. 13 may become overcrowded. A right-of-way adequate for a six-lane divided expressway is recommended.

7. Widening U.S. 13 from Edgely to Wheatsheaf from a two-lane into a four-lane divided highway - 2.8 miles.

   From the Bristol Delaware River approach to Wheatsheaf, the proposed Delaware River Expressway would coincide with the present U.S. 13. From Edgely to Wheatsheaf the present 24-foot pavement was recently built off-center to facilitate future widening with a divisor. Already it serves an average daily traffic of 6,600 vehicles. Within the next 12 years it is estimated this traffic will increase to approximately 10,000 vehicles per day due largely to scheduled industrial developments.

   By widening the present pavement on its present location into a four-lane divided highway, future traffic needs may be accommodated. Provision should be made for a right-of-way adequate for six lanes. The plan should be integrated as far as possible with proposed adjacent industrial developments.

8. New construction of U.S. 13 from Wheatsheaf to Morrisville - a four-lane divided artery with controlled access - 3.1 miles - connecting with U.S. 1 as relocated in Morrisville.

   Within the next decade it is expected this section of the Delaware River Expressway will accommodate an average daily traffic of over 10,000 vehicles. A new four-lane divided expressway having controlled access characteristics will enable the traffic to move freely and with safety. This improvement should be made when practicable. Sufficient right-of-way should be obtained for six lanes. Plans should give consideration to access to, or exit from, any adjacent and future industrial improvements.

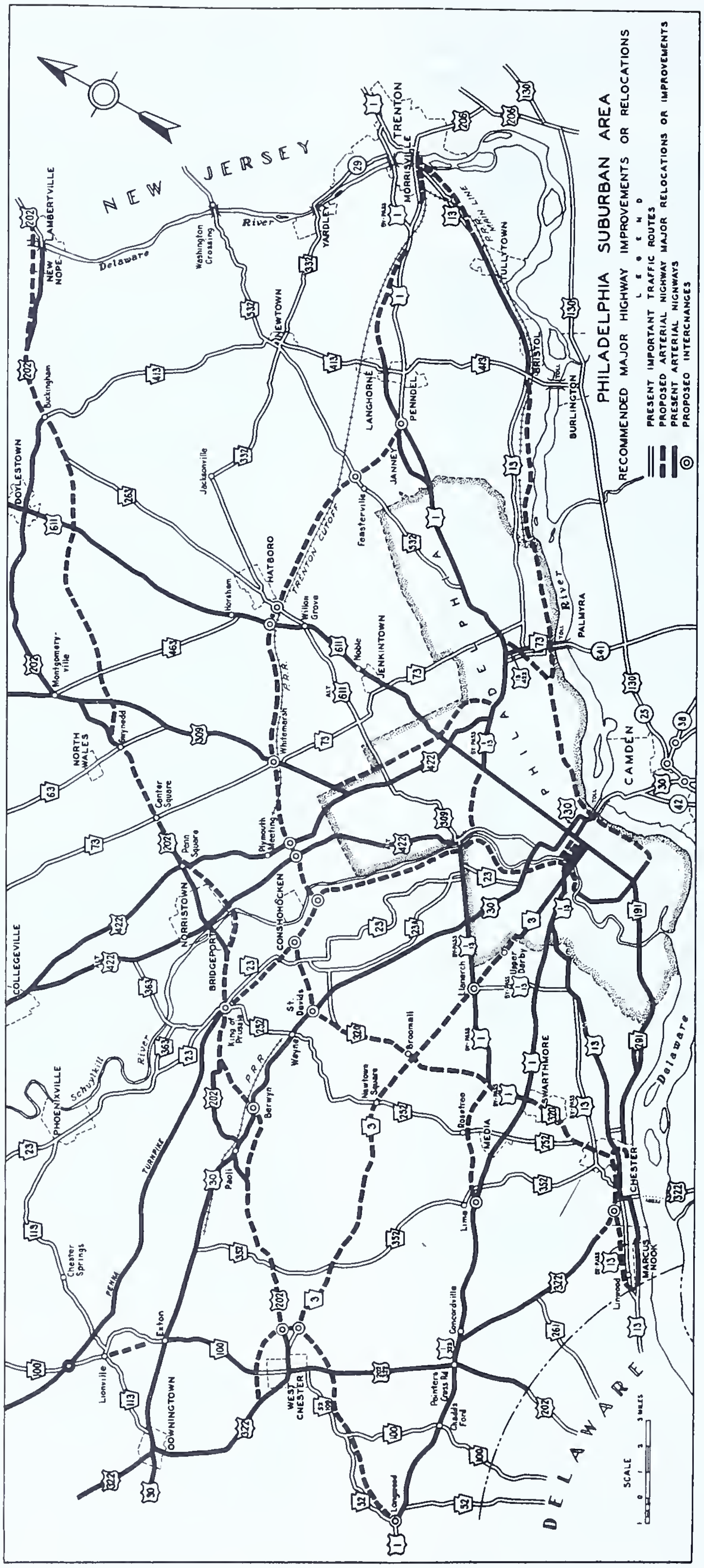
Intermediate Expressway Loop around Philadelphia from Chester to Swarthmore, St. Davids, West Conshohocken, Whitemarsh, Hatboro, and Janney

A belt-line expressway around Philadelphia is necessary to serve traffic converging on Philadelphia from Trunkline routes to the north, south and west, including the Pennsylvania Turnpike. Any highway traffic originating or terminating in areas through which such a loop might pass, will find it a direct and convenient route to or from any radial Trunkline leading to or from Philadelphia. Many miles of unnecessary daily travel could be avoided by such a direct expressway. It is expected that these improvements will soon attract considerable additional traffic relieving local streets to that extent.

Widening and reconstruction between Chester and the Valley Forge Expressway, will provide a convenient and direct route for immediate traffic needs. If adequate right-of-way for a four-lane divided expressway having grade separations at important highway intersections is secured when the more immediate improvements are made, the right-of-way costs will be minimized as soon as it becomes practicable to provide additional lanes.

The location of this suggested loop between Chester and the Valley Forge Expressway follows, for the most part, present Pa. 320. This route in certain areas is already a four-lane divided road. In other instances there are sections of three-lane and two-lane road. When the immediate improvements have been made this route will provide good alignment and good grades at minimum right-of-way expense.

Between the Valley Forge Expressway and U.S. 1 at Janney, the expressway will provide a faster and more convenient route for U.S. 309 traffic to or from Philadelphia which may then use the Valley Forge and Schuylkill



PHILADELPHIA SUBURBAN AREA

RECOMMENDED MAJOR HIGHWAY IMPROVEMENTS OR RELOCATIONS

River Expressway. It will provide a direct connection for traffic between Trenton and the New Jersey Turnpike and the arterial routes leading from Philadelphia including the Pennsylvania Turnpike.

This portion of the belt line will have minimum right-of-way cost. The section between the Valley Forge Expressway and Whitemarsh will become very heavily traveled, since it will serve not only the loop traffic but also a large portion of U.S. 309 traffic entering or leaving Philadelphia. The major portion of this entire section will parallel the Trenton Cut-off of the Pennsylvania Railroad and may be largely constructed adjacent to the railroad right-of-way.

The latter portion of this proposed expressway loop would become a direct routing for Pennsylvania Turnpike traffic to or from the Trenton Interchange of the New Jersey Turnpike.

U. S. 202 Outer Loop around Philadelphia Improvements

The adequacy of the arterial routes leading into Philadelphia from the south, west and north for many years to come will be assured only by providing facilities as soon as practicable to relieve these arteries and provide greater distribution along traffic "desire lines" by constructing an outer loop with expressway characteristics.

This should be a highway of modern design adequate for needs within its lifetime and capable of expansion as required without acquiring new right-of-way. It would begin approximately at Longwood on U.S. 1 and extend to the loop around West Chester; thence to the westerly edge of Berwyn; thence to King of Prussia; thence by-passing Bridgeport and Norristown to the south and extending easterly to Center Square and Gwynedd; thence on new location on township roads directly to Buckingham and by-passing Doylestown to the south; thence along the present U.S. 202 for a short distance and thence by-passing New Hope in a direct line to Lambertville, New Jersey.

A new bridge with elevated approaches will be required over the Schuylkill River. Interchanges with important arterial highways should be provided. The terrain near Berwyn will permit the construction of an underpass beneath the main line of the Pennsylvania Railroad and still allow room for an interchange with U.S. 30. The descending grade toward King of Prussia may be designed within reasonable limits.

The following improvements are recommended to be undertaken when practical. Where sections of two-lane pavements are built they should be off-center to permit future widening into a four-lane divided highway.

Chester County	5.7 miles	24-foot pavement
	17.0 miles	36-foot pavement
	3.8 miles	48-foot divided pavement
Montgomery County	14.9 miles	48-foot divided pavement
	2.7 miles	24-foot pavement
Bucks County	7.8 miles	24-foot pavement
	9.1 miles	36-foot pavement

A completed study of traffic patterns should be made available when selecting design standards for the various improvements. The widths shown above are tentative but are believed to be approximately what is needed. They are based on 1947 traffic survey data which have not yet been finally interpreted.

Pa. 3—West Chester Pike Improvements

The West Chester Pike has become inadequate most of the way to Philadelphia.

By completing the improvements indicated below as soon as practicable, this artery is expected to serve adequately for many years to come. A right-of-way secured now should be wide enough for at least a four-lane divided pavement with street car tracks in the divisor. The recommended improvements are:

New four-lane divided pavement	16.7 miles
Widen to a four-lane divided pavement and resurface	0.7 mile

The present location of Pa. 3 is believed to be satisfactory and the best available.

Stenton, Godfrey, and Adams Avenues Improvements

A direct route from U.S. 309 in northeastern Philadelphia to the Roosevelt Boulevard and the Tacony-Palmyra Bridge across the Delaware River is required to serve this cross-town traffic. Such a route should be at least 50 feet wide between curbs.

It is proposed that Stenton Avenue be widened and improved from U.S. 309 to Evergreen Street and a traffic interchange with U.S. 309 be provided. From Evergreen Street to Wister Street, Stenton Avenue is recommended for repaving making it a 50-foot roadway throughout.

The alignment of Godfrey Avenue from 12th Street to 7th Street should be straightened and a viaduct is recommended on Adams Avenue from Front Street to Rising Sun Avenue to carry the roadway over Tacony Creek.

From Roosevelt Boulevard to the Tacony-Palmyra Bridge, traffic now is accommodated by two one-way streets which converge at Keystone Avenue. A new underpass to permit Levick Street to cross under the main line tracks of the Pennsylvania Railroad between Keystone Avenue and the Tacony-Palmyra Bridge has been agreed to between the Department of Highways and the City of Philadelphia.

Pennsylvania Boulevard from Benjamin Franklin Parkway to Woodland Avenue and 32nd Street Improvement

Pennsylvania Boulevard should be a multiple-lane facility between the termini mentioned in the title to provide a direct route from the central business district to the Schuylkill River Expressway, and the railroad station at 30th Street, and the area served by West Market Street and Lancaster Avenue. The Vine Street Extension should not be expected to serve traffic in this area; it should be very largely devoted to serving as an approach to the Delaware River Bridge.

All surface railroad tracks between 30th Street and Broad Street are scheduled for removal as provided in agreements between the Department of Highways, the City of Philadelphia and the Pennsylvania Railroad. The area occupied by the railroad tracks will then be available for business development. This further argues for an additional street facility through this future business district.

Two moving lanes in each direction separated by a divisor with two adjacent parking lanes are proposed for the roadway. This boulevard would cross intersecting streets at grade from 15th to 22nd Street while 21st, 22nd, and 23rd Streets will pass underneath the Pennsylvania Boulevard. A new bridge over the Schuylkill River having two 25-foot traffic lanes in each direction with a divisor and two sidewalks, will give access to the Schuylkill River Expressway and the east portal of the 30th Street railroad station. The boulevard would pass over the station plaza and extend directly to Woodland Avenue at 32nd Street.

It is recommended that this improvement be undertaken as a future project when practicable. It is not included in this program due to other extensive and costly projects more vital to Philadelphia's overall problem and previously recommended for early completion. Furthermore, work cannot be undertaken until extensive readjustments are made in railroad facilities.

Delaware River Bridges

The present facilities for crossing the Delaware River cannot be expected to answer traffic needs in this area indefinitely. A better distribution of this traffic will naturally relieve any bridges of congestion as well as their approaches. Furthermore, a new cross-river facility, if properly located, will reduce vehicle-miles of travel in the Philadelphia-Camden district.

A cooperative study between interested agencies should be pursued objectively and with minimum delay. The basic data compiled from the 1947 overall traffic survey in the Philadelphia-Camden area should be used as far as it may be made to answer the problem, when selecting a new river-crossing site south of the present Delaware River Bridge.

A study of this kind could not be made within the life of this Commission. The estimated cost of any such improvement would be highly speculative, unless it were based on a specific site. Furthermore, such a facility would doubtless be financed by bond issue to be amortized by toll revenue. It is, therefore, not included in this 12-year program.

Other Improvements

Other street revisions are proposed but they are relatively minor in importance. Chief among them is the repairing of Oregon Avenue from 20th Street to Broad Street - five blocks in length. This work will call for four roadways with divisor - each roadway to accommodate two lanes of traffic. It will be constructed on the present location of Oregon Avenue and be a part of the low grade Industrial Highway from Chester to points along the Delaware River front toward the east.

The proposed mall between the approach to the Delaware River Bridge and Independence Hall is included here although its importance arises primarily from patriotic and aesthetic considerations rather than as a solution to a major traffic problem.

City Line Avenue as previously discussed will serve as a part of the inner by-pass. It will require approximately a two-foot widening to provide for a center divisor. With this aid in channeling traffic together with the enforcement of no-parking regulations, the capacity of this artery will be increased sufficiently to render adequate service for many years.

COATESVILLE

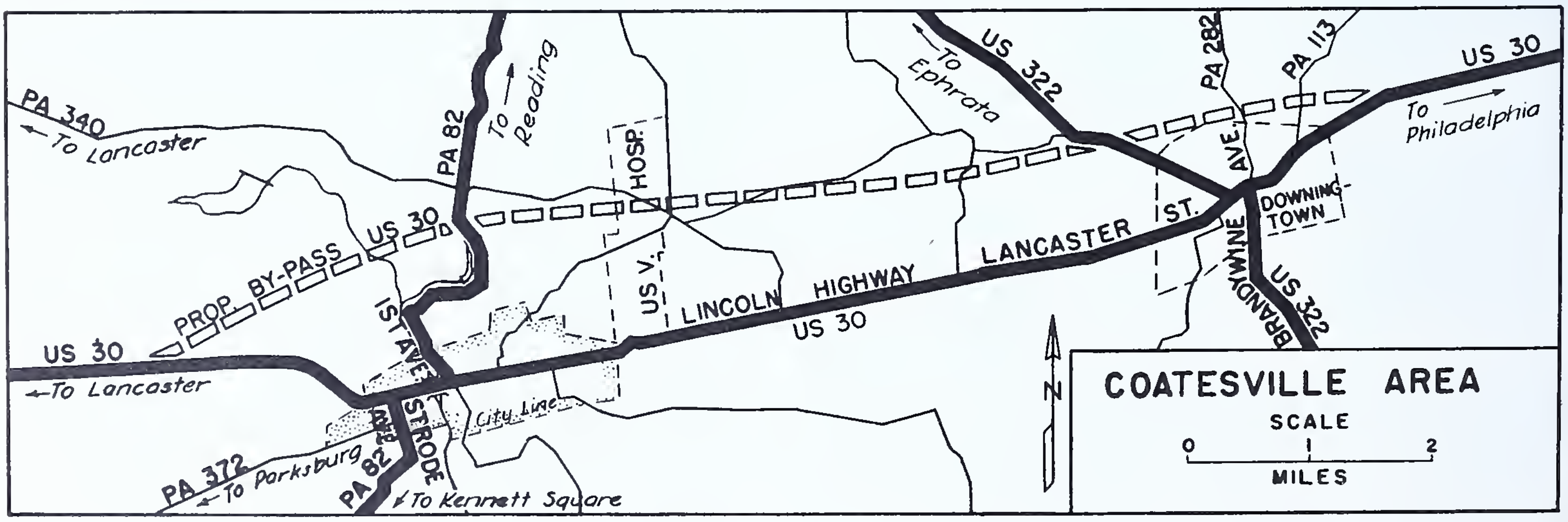
Coatesville straddles U.S. 30 (its main street) throughout its entire length from west to east - slightly over two miles. Important and busy intersecting streets retard free flow of traffic. Present average daily traffic is approximately 13,000 vehicles and is estimated to be around 15,000 by 1962. Although the pavement is 50 feet wide, these traffic volumes cannot move safely in this environment, unless speed is greatly retarded and Trunkline traffic habits are abandoned. Free moving traffic is practically limited to two lanes. The topography plus improved properties in Coatesville prevent the location of a new artery through the city.

The opening of the Eastern Extension of the Pennsylvania Turnpike will relieve traffic on U.S. 30 in this area to some extent, but an analysis indicates that relief would still be inadequate and that a normal traffic increase may be expected in a very few years to restore the presently crowded condition.

Proposed By-Pass

The most practical solution is a new by-pass - 10.6 miles long - to the north, as indicated by the map. Since a similarly crowded street condition exists in Downingtown, it is recommended that the new highway be extended to by-pass Downingtown as well.

The by-pass should provide for two 12-foot lanes off-center, to permit two additional lanes on right-of-way ade-for four lanes when built. The design should include limitation of access from abutting properties.



CHESTER

Proposed U. S. 13 Expressway

U.S. 13 through Chester forms a vital highway link for most Philadelphia-Wilmington traffic. It also affords Philadelphia traffic a very direct routing to U.S. 1 at Concordville via the recently built U.S. 422 from Chester to Concordville. This Trunkline traffic must go through the business district of Chester, with the usual congestion and delay.

Studies show that further distribution of this Trunkline traffic over the existing street system is futile.

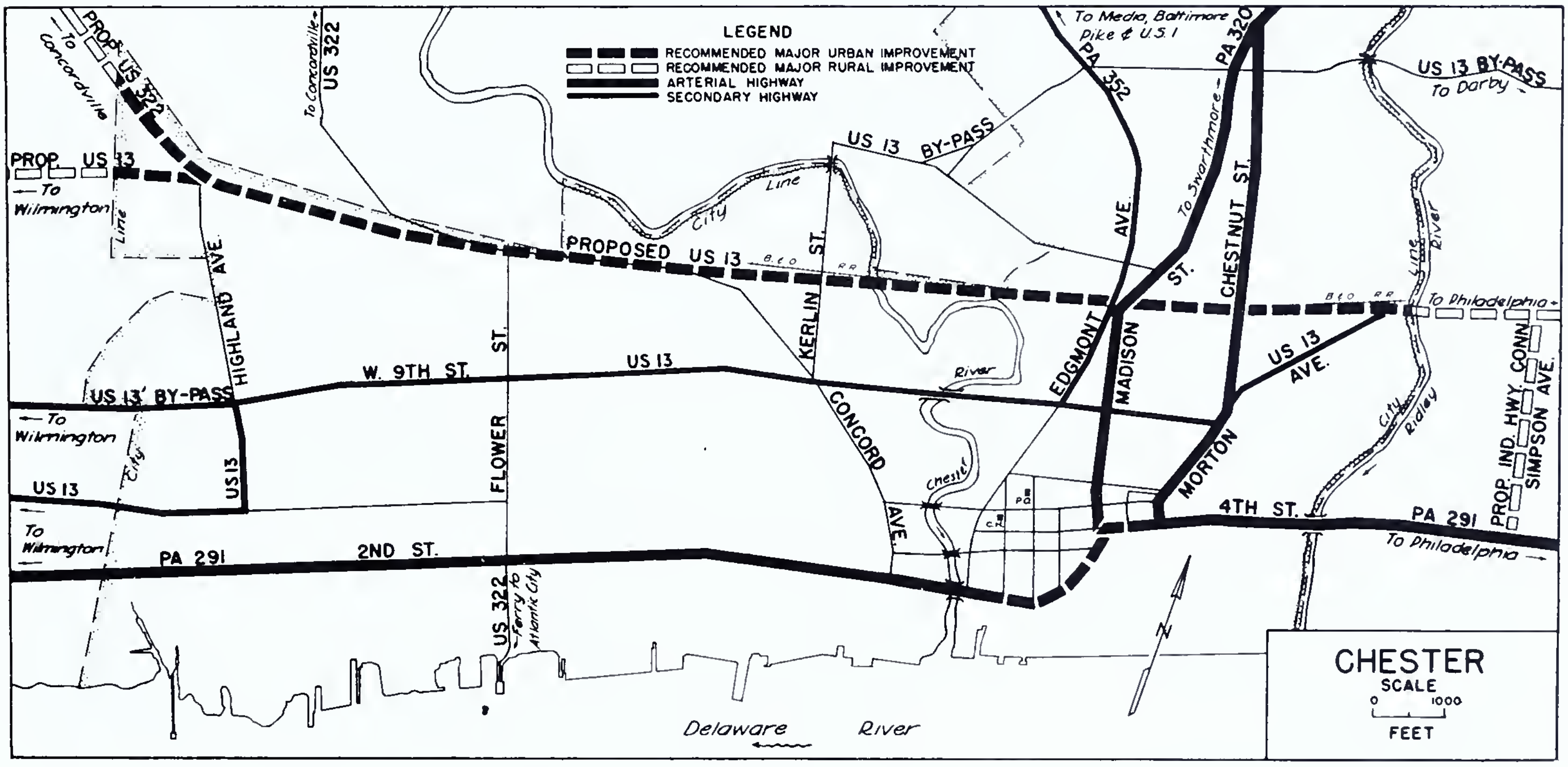
A new thoroughfare across Chester having limited-access characteristics and direct connections with arterial highways and streets has been under study by the Department of Highways. The Commission believes this to be the best plan available to meet future highway needs.

This would be a limited-access four-lane divided highway in the western end of the city; a depressed highway adjacent to the central city; and a surface highway toward the eastern end of the city, where it will connect with the present U.S. 13 and with a new extension of the Industrial Highway leading into Philadelphia (Simpson Avenue). The depressed portion of this new multiple-lane facility would follow approximately the present location of the Baltimore and Ohio Railroad and require a relocation of these tracks adjacent to the northerly edge of the proposed Trunkline right-of-way.

Proposed Pa. 291 (Second Street) Improvements

Pa. 291 over Second Street near the water front carries heavy industrial traffic. It could serve as a by-pass for a small segment of the Philadelphia-Wilmington traffic. Because of the general interest in gaining access to this highly industrialized water front, both in normal and emergency periods, the greatest possible freedom of traffic movement is imperative.

As shown on the map, a major though short construction project (a four-lane divided section) on a new location will afford a direct connection with the Industrial Highway to Philadelphia. The right-of-way cost should not be excessive.



LANCASTER

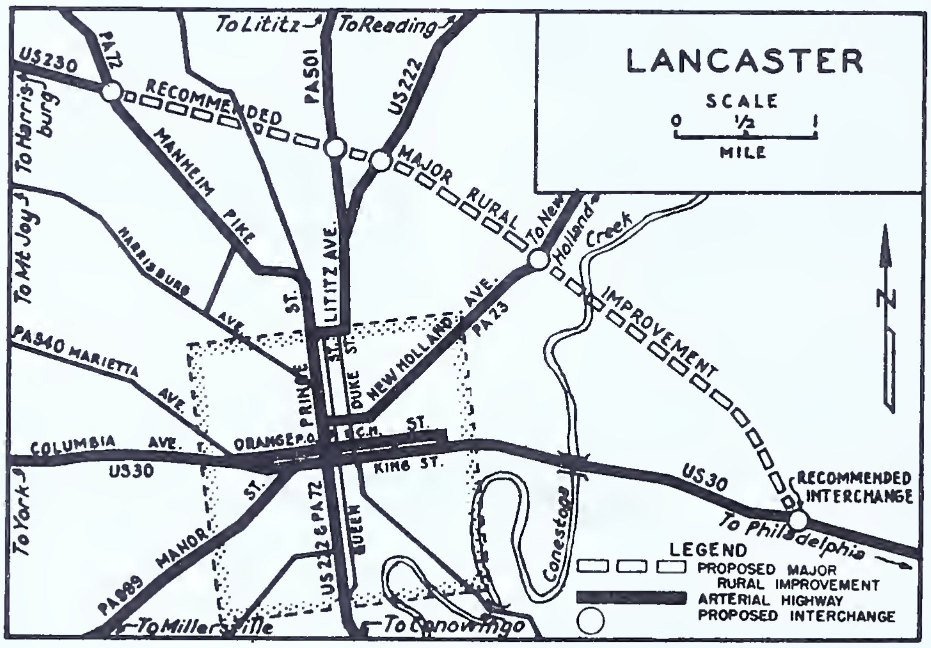
Several major traffic routes (including U.S. 30, U.S. 222 and U.S. 230) converge on Lancaster. Their traffic volumes range from 2,200 to 18,400 vehicles a day.

The congestion created on the city streets by these traffic volumes added to that generated within the city, which has a population of approximately 62,000 (exclusive of suburban areas), interferes excessively with free vehicle movement. The Trunkline highways have lost their proper characteristics and become inadequate local streets. This is especially true of U.S. 230.

Proposed U. S. 230 By-Pass

For over 10 years a means of permitting U.S. 230 traffic to by-pass the city has been considered. More recent studies made by the Department of Highways, and generally accepted by the City of Lancaster, have recommended a by-pass as shown on the map.

The Commission endorses this plan in principle. It recommends a four-lane graded width with sufficient traffic lanes to meet requirements. A portion of this by-pass has been contracted for (since this Commission began to operate) calling for a four-lane divided highway. The balance of the improvement is in the planning stage.



HARRISBURG AREA

Harrisburg acutely needs additional Trunkline facilities to relieve frequently recurring traffic jams to and from the east and west entrances to the city caused by seven converging main arterial routes (U.S. 11 Alt., U.S. 11, U.S. 15, U.S. 111, U.S. 230, U.S. 22 and U.S. 322). Their average daily traffic ranges from 8,200 to 20,000 vehicles per day.

Average daily traffic across the two bridges over the Susquehanna River on the west is 15,650 and 32,500 vehicles. As much as one hour frequently is required to pass over these bridges into the city.

Recommendations

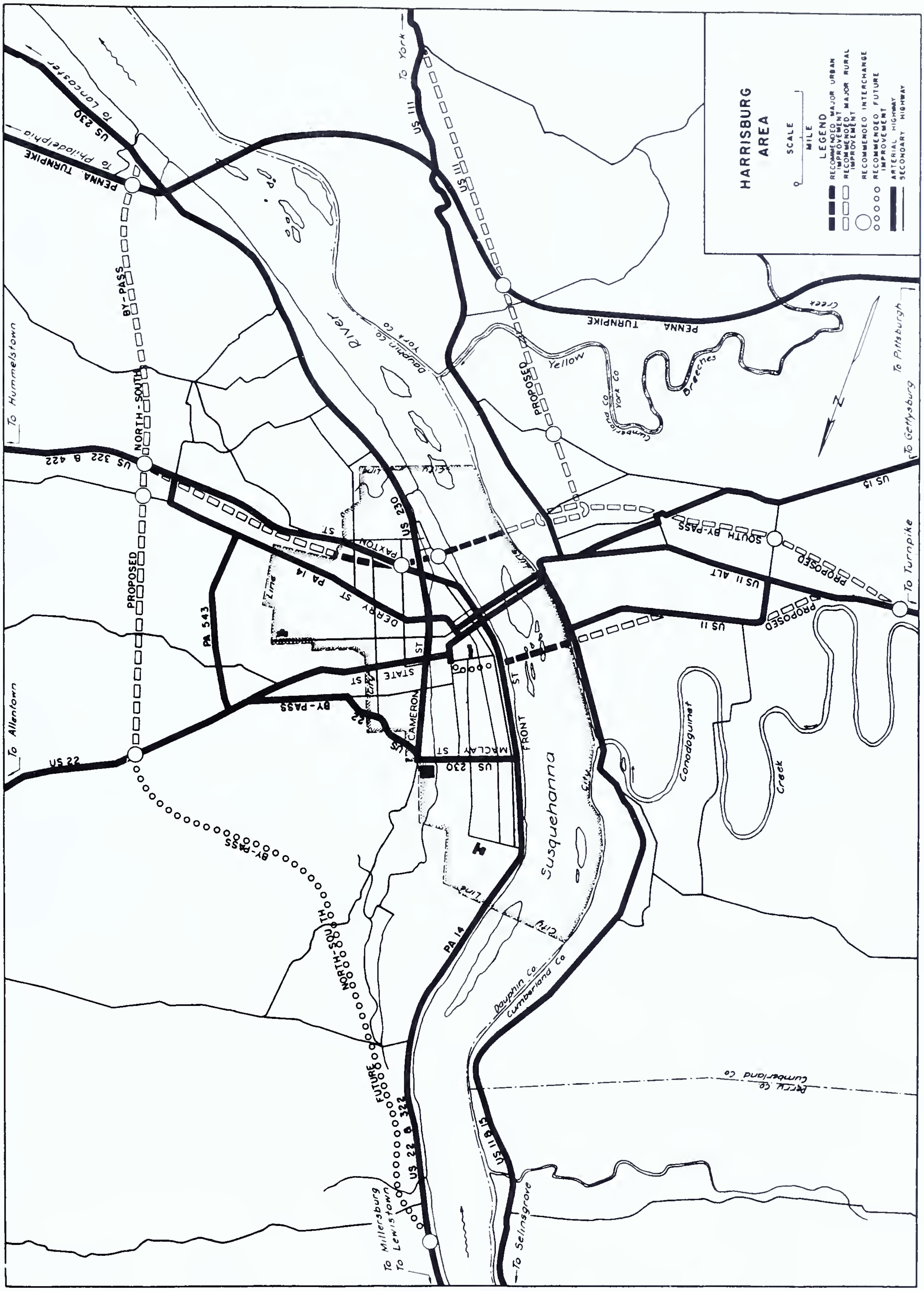
The Commission has reviewed the numerous studies made of this problem by interested agencies. It believes that for the most part they should be adopted. Its major recommendations (see map) follow:

1. A new limited-access east-west four-lane divided highway indicated as the "Proposed South By-Pass." After deducting traffic estimated to use the new Eastern Turnpike Extension and the proposed North Bridge, it is believed this artery would serve 16,800 vehicles per day crossing the Susquehanna River. With interchanges as shown, this should be free-moving traffic and greatly relieve the present street system of Harrisburg.

2. A new east-west limited-access four-lane divided highway connecting the proposed U.S. 11 in Camp Hill with the Capitol area in Harrisburg. Eventually (though not included in this program as the map shows) an extension of this new artery is recommended through the proposed Capitol Park to connect with State Street (U.S. 22) to the east. Allowing for traffic expected to use the new Eastern Turnpike Extension and the proposed South By-Pass, it is believed this facility will accommodate approximately 16,800 cars per day crossing the Susquehanna River. Construction of this facility was begun in January, 1950. It also will relieve the congestion in the vicinity of the present bridges on each side of the river.

3. A new location for U.S. 111 to by-pass the main street of New Cumberland will relieve congestion on New Cumberland's main street which has inadequate width. This new connection should have limited-access characteristics.

4. A North-South By-Pass on the east side of the Susquehanna River will relieve the congestion on Harrisburg's streets coming from these directions. A contract is now underway for the connection of the Pennsylvania Turnpike and U.S. 230 on the south with U.S. 322 on the north. It calls for a


HARRISBURG AREA
SCALE
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MILE
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LEGEND
RECOMMENDED MAJOR URBAN IMPROVEMENT
RECOMMENDED MAJOR RURAL IMPROVEMENT
RECOMMENDED INTERCHANGE
RECOMMENDED FUTURE IMPROVEMENT
ARTERIAL HIGHWAY
SECONDARY HIGHWAY
To Lancaster
US 230
To Philadelphia
PENNA TURNPIKE
To York
US 111
US 11
PENNA TURNPIKE
Creek
Breeches
Yellow
Cumberland Co
York Co
To Pittsburgh
To Gettysburg
Dauphin Co
York Co
River
BY-PASS
NORTH-SOUTH
PROPOSED
To Hummelstown
US 322 & 422
PROPOSED
US 15
SOUTH BY-PASS
PROPOSED
To Turnpike
US 11 ALT
US 11
PROPOSED
PAXTON ST
US 230
PA 14
DERRY ST
PA 543
City Line
STATE ST
ST
13th ST
BY-PASS
US 22
CAMERON
US 22
MACLAY ST
US 230
FRONT ST
Susquehanna
City
Conodoguinet
Creek
To Allentown
US 22
BY-PASS
NORTH-SOUTH
City Line
City Line
PA 14
Dauphin Co
Cumberland Co
Cumberland Co
Perry Co
FUTURE
US 22 & 322
US 11 & 15
To Millersburg
To Lewistown
To Selinsgrove

two-lane highway on a four-lane right-of-way. When completed, it is estimated to carry at least 6,450 cars per day, thus becoming a relief to U.S. 230 approaching Harrisburg from the southeast.

An extension of the North-South By-Pass from U.S. 322 to U.S. 22 is now being planned. The Commission believes it will serve a genuine need despite the fact it is somewhat removed from Harrisburg's street system. East-west traffic on U.S. 22 desiring to pass beyond Harrisburg may avoid delays or congestion in Harrisburg by using the by-pass to U.S. 322, and thence proceed west over the South By-Pass. It is estimated to carry approximately 4,900 cars per day, which would otherwise travel through Harrisburg's business district.

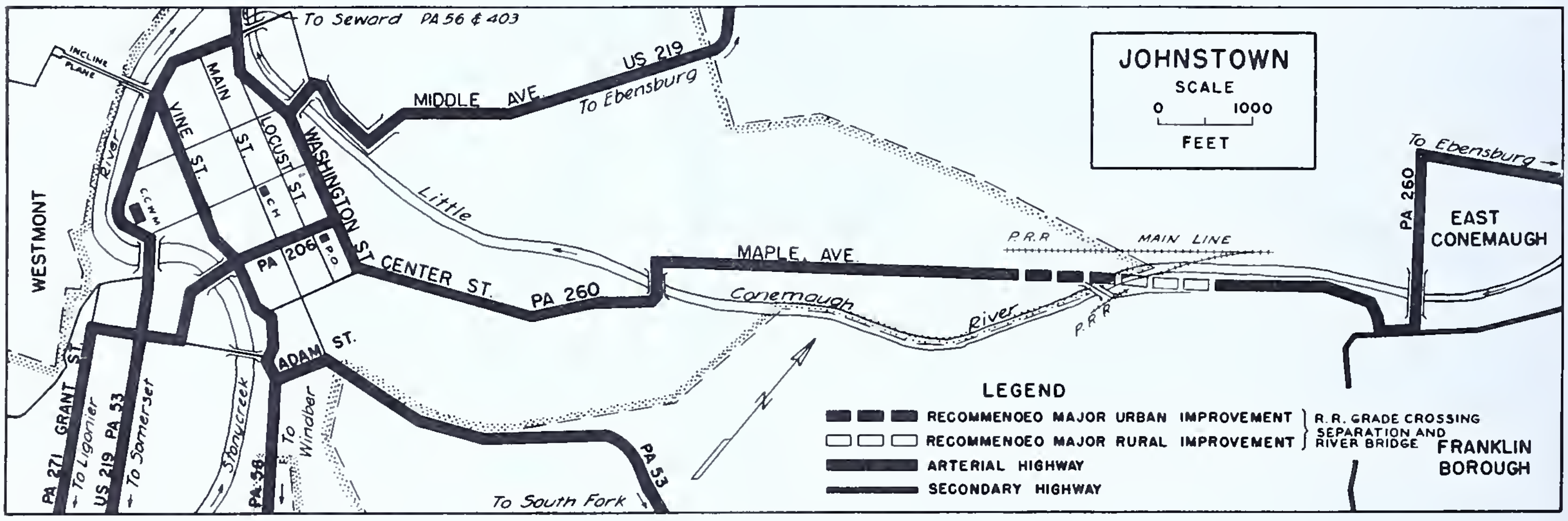
The remaining section of the North-South By-Pass will be the lightest traveled section when built. Its location is partially governed by the routing already fixed for the remaining sections of this by-pass. While a location nearer Harrisburg with connections with city street arterials would have reduced the traffic on Front Street along Harrisburg's river front, nevertheless, when it becomes practical to undertake this improvement it is estimated it will carry well over 3,000 vehicles per day. This improvement is suggested for the future when circumstances permit and is not a part of this 12-year program.

JOHNSTOWN

Johnstown presents particularly difficult highway and traffic problems because of the restricted area of its business district at the junction of the Conemaugh River and Stony Creek, heavy industrial development, steep grades, sharp curves, narrow highways and heavy local and Trunkline traffic concentrations. Average daily traffic on U.S. 219 is approaching 4,500 vehicles and normal growth will require additional capacity. Pa. 260 is not feasible as an alternate Trunkline because of a very busy railroad grade crossing at the city line and an inadequate bridge over the Conemaugh.

Proposed Pa. 260 Improvements

Two Trunkline routes to the north are recommended. By eliminating the grade crossing on Pa. 260 at the eastern city line and constructing a new bridge over the Conemaugh, this route will be able to absorb much of the traffic on U.S. 219. It is believed these improvements will make it possible for these two alternate routes to provide reasonably good access to Johnstown from the north for many years to come.



NEW KENSINGTON

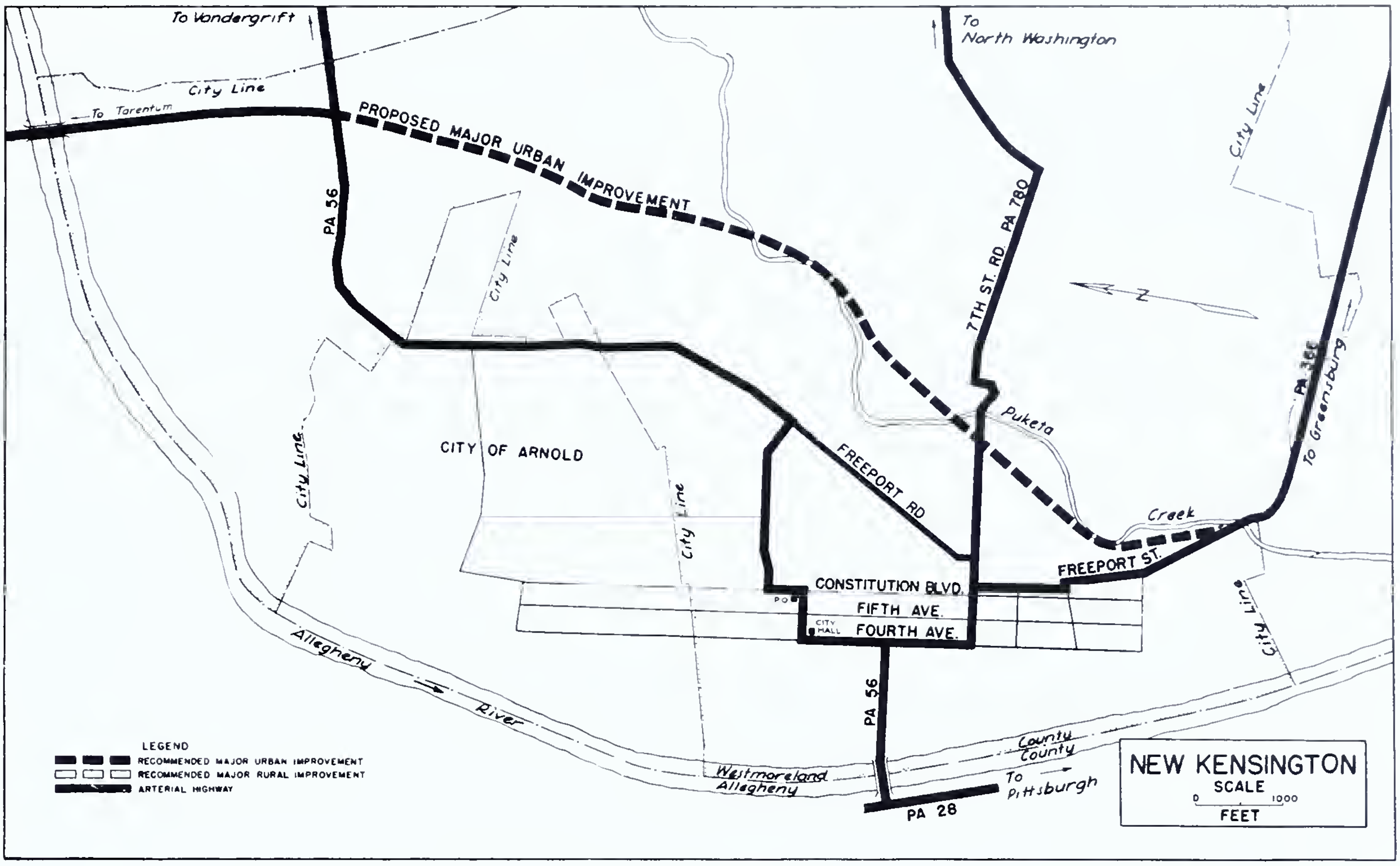
The construction of a toll bridge with approaches across the Allegheny River at Tarentum is near completion. This project is not a part of this statewide survey. The traffic problem in New Kensington discussed here is based on traffic habits expected to result from this improvement which extends into New Kensington from Tarentum.

Proposed By-Pass

A by-pass as depicted on the map will provide for most traffic not desiring to enter downtown New Kensington. A large percentage of those employed by the industries in either Arnold or New Kensington may find much better access and exit via this by-pass and local connecting streets.

All traffic from Tarentum and points farther north or east desiring to reach Westmoreland County will find such a by-pass a direct route free from local traffic friction. To that extent the downtown area of the city with the present inadequate bridge will be relieved. The projected traffic using such a by-pass is expected to reach an average daily volume of 4,500 cars—a traffic volume well within the life of the pavement.

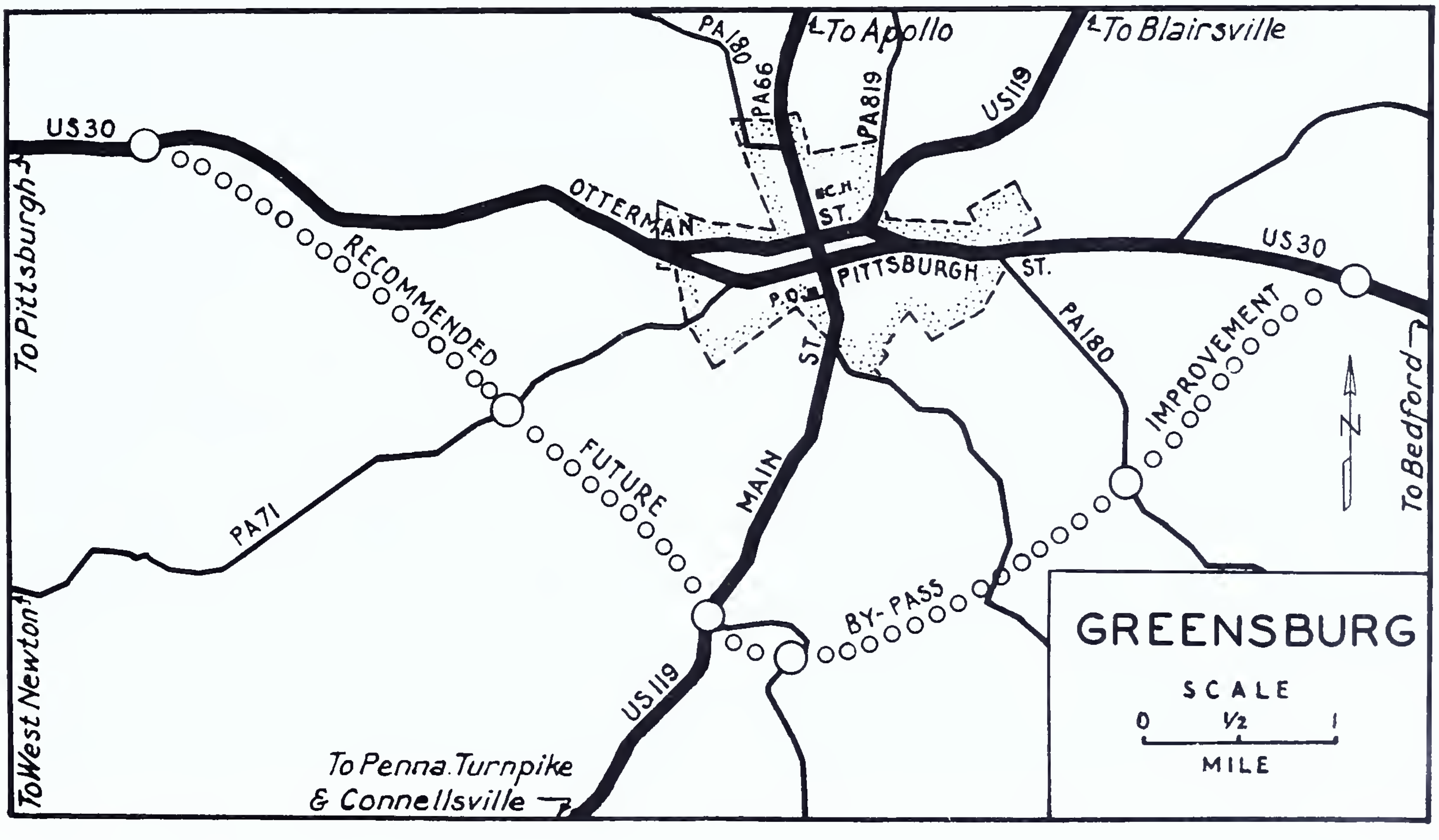
The proposed location will follow vacant land for approximately 70 percent of the way. The grades will be light throughout its 2.5 mile length. Two 12-foot lanes of pavement are recommended for construction.



GREENSBURG

Two one-way parallel streets serve U.S. 30 east-west traffic through Greensburg. They have steep grades and streetcar interference. There are many delays due to local traffic congestion and traffic lights. The average daily 1949 traffic flow on the two one-way streets serving U.S. 30 was 17,200 vehicles, of which nearly 25 percent were trucks.

Approaching Greensburg from the west is a four-lane divided highway. The same design applies to the roadway to the east now under construction. Greensburg, therefore, offers excessive resistance to a free flow of Trunkline traffic.



Proposed By-Pass

For more than 20 years a by-pass has been suggested for Greensburg. The Department of Highways has considered it, along with many other problems which were more acute. A gradual increase in traffic resulted in adopting a parallel route plan with one-way traffic. However, that plan is no longer satisfactory.

The map indicates an approximate location for a by-pass to the south of this city. It may be modified to suit more carefully developed facts through surveys over this difficult terrain. Any such plan, however, would offer the advantages of good grades, freedom from local traffic interference, a relief for Greensburg's streets (now scarcely more than adequate for local needs), safer driving conditions, a substantial saving of time, and interchange connections with Pa. 71 and Pa. 180, U.S. 119 and U.S. 819 to the southwest, south and southeast.

Such a by-pass should have limited-access characteristics. The design and the definite location should be based on a thorough study of traffic characteristics in this area. Topography and operating economics dictate within closely defined limits what should be done in this case. The undertaking of this improvement is recommended for the future when circumstances permit, pending the necessary preliminary studies. It is, therefore, not included in this inventory.

PITTSBURGH METROPOLITAN AREA

This section does not include improvements needed within Pittsburgh which are discussed separately. The necessity of eliminating bottlenecks on the Trunkline highways in Pittsburgh's suburban areas is acute. Suitable future highway development in this area must coordinate both urban and suburban needs.

The unusually difficult terrain and highly developed industry in the valleys accentuate the problem in this metropolitan area with a population of 1,500,000. Considering Pittsburgh's industrial importance and the heavy volumes of traffic generated within its borders some of the more pressing major highway improvements believed to merit early solution are:

Route	Description	Average Daily Traffic - 1950
Pa. 51	Pittsburgh-Uniontown Rt.	21,800
U.S. 22	William Penn Highway (east)	13,000
Pa. 80	Saltzburg Pike	5,400
Pa. 8 & Pa. 28	Aspinwall-Sharpsburg Rt.	24,000
U.S. 19	Perry Highway (north)	14,000
Pa. 88	Ohio River Boulevard	24,000
Pa. 8	Pittsburgh-Butler County Line Route	11,800
U.S. 22 beyond Fork	William Penn Highway (west)	11,200
U.S. 30 beyond Fork	Lincoln Highway (west)	6,400
U.S. 22-30 beyond Crafton	Penn-Lincoln Parkway	16,000

Pa. 51 Improvements

Southeast of Pittsburgh Pa. 51 through the Borough of Brentwood and **Baldwin** Township (3.2 miles) serves an average daily traffic which requires a four-lane divided highway. The present pavement is 30 feet in width, with lightly rolling grades. The recent industrial development southeast of the Pittsburgh-Allegheny County Airport, as well as an expanded traffic volume from Elizabeth and beyond, account for this.

It is recommended that the present pavement be retained, widened 22 feet and have a center divisor. This four-lane pavement should satisfactorily answer this problem during its lifetime.

U.S. 22 East (Pa. Alt. 80 East) Improvements

U.S. 22 was paved (33 feet in width) within recent years from the William Penn Interchange east of Wilkinsburg to the Allegheny-Westmoreland County line. It was not known then that the Western Extension of the Pennsylvania Turnpike would be undertaken and that an interchange with U.S. 22 would become the principal access point for Pittsburgh traffic.

The increased traffic on Pa. 80 from Indiana will require an expansion of this route from the Allegheny-Westmoreland County line to the Pittsburgh city line. Recent and rapid property developments east of Pittsburgh prohibit any such plan because of exorbitant damage costs. By connecting Pa. 80 with U.S. 22 east of the Turnpike Interchange, an additional traffic load is placed on U.S. 22.

It is recommended that the present 33-foot pavement on U.S. 22 from the Turnpike Interchange to the beginning of the Penn-Lincoln Parkway (a distance of 6.6 miles) be increased to 52 feet, with a center divisor for a four-lane highway. Within the life of such an improvement it is believed that traffic volumes will exceed 13,000 vehicles per day.

The proposed alternate location of Pa. 80 (4.4 miles in length) is expected to divert at least 2,500 vehicles per day to U.S. 22, and so relieve congestion due to suburban developments along the present Pa. 80. Trunkline or through traffic on this route to points east beyond the Westmoreland County line thus will be saved the annoyance of delays, congestion and the dangerous and blind intersections found on the present route in Allegheny County.

U.S. 22 West Improvements

Beginning approximately one mile west of the junction with U.S. 30 west, the present pavement of U.S. 22 is 22 feet wide for the 6.5 miles to the Washington County line. The grades, alignment, and condition of the present pavement make it unsuitable for salvaging. The average daily traffic on this section varies from 10,000 to 11,200 vehicles. The terrain is difficult, making grading costs high for any suitable location. The construction of a new four-lane divided highway, having a modern design for all intersections, is proposed for this section.

Pa. 8 and Pa. 28 Improvements

This proposed improvement extends through Aspinwall, Sharpsburg and a portion of Etna. The streets accomodating these routes are entirely inadequate. They are only 34 feet wide but have to accommodate 24,000 vehicles a day. Grade crossings are encountered in Sharpsburg and Etna. No parallel routing over borough streets is available.

Considering the interference from local traffic through these adjacent communities approaching Pittsburgh, this route is a bottleneck. Wider pavements on the same artery farther to the east or northeast serve less traffic.

A four-lane limited-access highway with a divisor separated from the existing street facilities between its beginning at Blawnox and the western end of the pro- improvement in Etna (5.8 miles in length) is recommended. The new location should follow north of the present route on a higher elevation. Interchanges are recommended for important connections to arterial intersecting highways. Such an improvement will permit reasonably free flowing traffic to the Washington crossing bridge over the Allegheny and to the Pittsburgh city line.

Pa. 8 Improvements

This Trunkline highway to the north is paved for a width of 30 feet from the Etna borough line to the Butler County line--a distance of 12.5 miles. The average daily 1950 traffic is approximately 11,800. During week end and rush hours the roadway is inadequate, although the alignment, grades, and pavement are very good. By widening this section of highway 22 feet, a four-lane divided pavement will easily accommodate traffic during its lifetime.

Pa. 28 Improvements

From the east borough line of Blawnox to the Allegheny River bridge at New Kensington, the paved width of this highway is suitable for three lanes of traffic for a distance of 7.4 miles. A short section of pavement approximately 0.8 mile long is now 40 feet with no divisor.

The average daily traffic varies from 10,000 vehicles east of Blawnox to nearly 14,000 vehicles near the bridge over the Allegheny River at New Kensington. These volumes will increase when the Western Extension of the Turnpike is completed with its interchange with Pa. 28 near Acmetonia.

This pavement should be widened sufficiently for a four-lane divided highway. This Trunkline then should meet requirements for many years to come.

U.S. 19 Improvements

For 3.9 miles from a point north of Wexford to the Butler County line this route is inadequate. Average daily traffic approximates 6,650 vehicles. The present pavement width is 20 feet. It is unsatisfactorily designed and is in a weakened condition. The Turnpike Interchange north of Warrendale will also necessitate major changes. This section of U.S. 19 should be rebuilt to a total width of 48 feet with a divisor. Well within the life of this improvement the average daily traffic is expected to exceed 10,000.

As shown on the map, U.S. 19 should be relocated and rerouted. A new section should be built for 2.6 miles from the intersection of the McKnight Road (proposed U.S. 19) and Township Road 567 going northerly to Keown. This will be an entirely new highway connection and is intended to connect the present U.S. 19 at Keown to the McKnight Road, a four-lane divided highway to the Pittsburgh city line. This 2.6 mile section is proposed for new construction with a paved width of 48 feet and a divisor. The average daily traffic within its life expectancy is estimated to reach or exceed 12,000 vehicles.

U.S. 19--St. Clair Township Improvements

For 2.3 miles from the Washington County line to Clifton, the paved width of this highway is 33 feet. A four-lane divided pavement spans the remaining distance from Washington to Pittsburgh. The average daily traffic on this section is about 10,000 cars per day. It is expected to average 14,000 or more cars per day within the next few years.

By widening the present 33-foot pavement and making extensive alterations to the long bridge over McLaughlin Run at Clifton to provide for a four-lane divided pavement, this section of roadway will be adequate for many years. Its design will then be consistent with the entire remaining section of roadway from Washington to Pittsburgh.

Pa. 88 (Ohio River Boulevard) Improvements

Beginning in Edgeworth near the Sewickley borough line and extending approximately 3.2 miles to the Glenfield borough line this Trunkline pavement is 40 feet wide. It now accommodates approximately 14,000 vehicles per day - over 20 percent of which are trucks. While the location, alignment, and grades are satisfactory, its width is inadequate. This section should be widened by 10 feet and equipped with a center divisor to provide for four lanes consistent with other sections on the route.

Beginning near the northwesterly borough line of Glenfield and extending approximately three miles to the Horne Road intersection in Emsworth the present pavement varies from 27 to 30 feet in width, with average daily traffic of about 20,000 vehicles. This three mile section should be newly built to a paved width of 50 feet with a center divisor, thus providing for four traffic lanes meeting new construction standards.

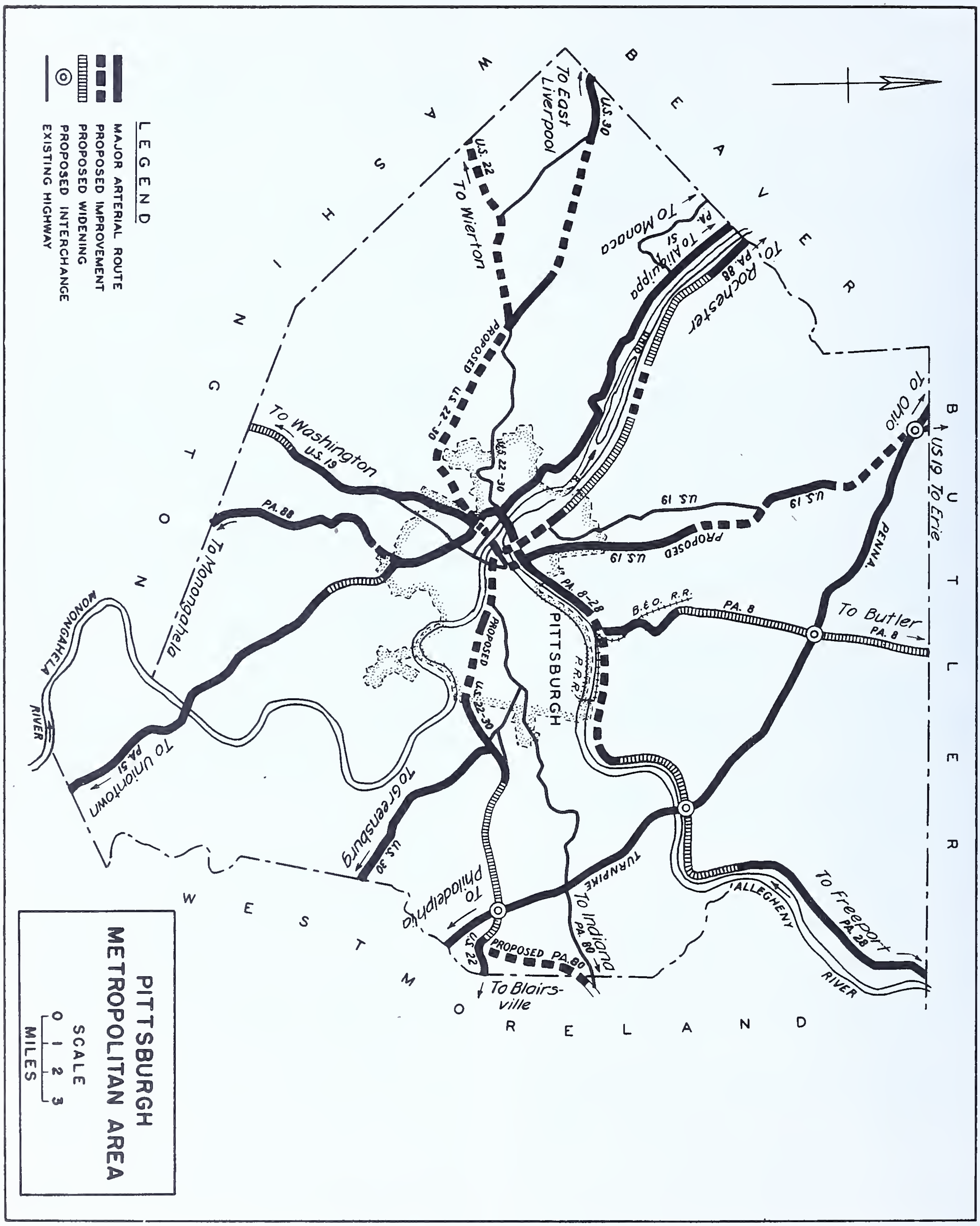
Beginning in Emsworth at or near the Horne Road intersection and extending to the Pittsburgh city line (a distance of 3 miles) the width of the present pavement is 40 feet, with average daily traffic approaching 24,000 vehicles - over 20 percent of which are trucks. This three mile section should be widened to a paved width of 50 feet with a center divisor.

Proposed U.S. 22-30 Crafton (Penn-Lincoln Parkway West) Improvements

Several years of cooperative study within and adjacent to Pittsburgh have resulted in an agreement that the construction of the Penn-Lincoln Parkway East and West calling for a four- and six-lane divided Trunkline through this exceedingly busy and difficult area, should be undertaken. Local planning agencies, the U.S. Bureau of Public Roads and the Department of Highways are in general accord on the location and plan to be used.

Topography and existing costly developments make this an expensive matter with no alternate scheme available. Its solution would never be satisfactorily reached without adhering to the sound principle that any such thoroughfare in this area must be built with consideration for ultimate standards, since later modifications would be too costly.

The construction work now under way within the City of Pittsburgh largely governs the location of this proposed improvement outside Pittsburgh to the west. A four-lane


PITTSBURGH METROPOLITAN AREA
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PROPOSED IMPROVEMENT
PROPOSED WIDENING
PROPOSED INTERCHANGE
EXISTING HIGHWAY
BEAVER
BUTLER
WESTMORELAND
WASHINGTON
PITTSBURGH
To East Liverpool
U.S. 30
U.S. 22
To Wierton
To Monaca
PA. 51
To Aliquippa
To Rochester
PA. 88
OHIO
To Ohio
US 19 To Erie
PROPOSED U.S. 22-30
U.S. 22-30
To Washington
U.S. 19
PA. 88
To Monongahela
MONONGAHELA RIVER
To Uniontown
PA. 51
U.S. 19
PROPOSED
PA. 8-28
B.&O. R.R.
PA. 8
To Butler
PA. 8
PENNA.
P.R.R.
PROPOSED U.S. 22-30
To Greensburg
U.S. 30
To Philadelphia
TURNPIKE
To Indiana
PA. 80
PROPOSED PA. 80
U.S. 22
To Blairsville
ALLEGHENY RIVER
To Freeport
PA. 28

divided paved roadway from the west city line to the present U.S. 22-30 (Steubenville Pike) must cross Pa. 519 and Chartiers Creek in Carnegie by means of a high-level structure in order to avoid excessive costs. Campbell' s Run Road offers the best route to reach the western terminus of this Parkway at the Steubenville Pike. The present general location of U.S. 22-30 to the west from Pittsburgh city line through Crafton can not be satisfactorily developed. It is notoriously inadequate and limited as to potential improvements.

From the Steubenville Pike a four-lane divided highway (proposed U.S. 30) built to high standards by Allegheny County continues to the west as far as the Greater Pittsburgh Airport. It is believed that the high-level location agreed upon for this Trunkline facility is the best solution obtainable and that the project should be put under way as a limited-access four-lane divided expressway with interchanges at the Banksville Road and at Carnegie.

U.S. 30 West Improvements

Beginning at the intersection of the present U.S. 22-30 and the newly constructed four-lane divided highway leading to the Greater Pittsburgh Airport the proposed U.S. 30 west will utilize this 2.3 mile multiple-lane pavement built by Allegheny County according to acceptable standards for a new pavement.

Since it follows a desirable location for a modern Trunkline to the west, an extension should be built from the Greater Pittsburgh Airport west to the Borough of Clinton. By constructing a new 24-foot pavement of proper alignment for this gap of 5.6 miles, a far superior location for U.S. 30 to the west is practical. It would also serve the Greater Pittsburgh Airport. Average daily traffic is not expected to exceed 5,000 vehicles per day during the life of the pavement. It is recommended, however, that sufficient right-of-way be secured to accommodate a four-lane divided pavement when this is found necessary. The present U.S. 30 leading to Clinton from U.S. 22-30 was built about 25 years ago on a location which would be expensive to modernize for future needs as now forecasted.

Other Improvements

These recommended major improvements can not answer all of the highway problems that will demand attention in the Pittsburgh suburban area. It is believed that the major improvements recommended will largely accomplish a modernization of the principal Trunklines. These are of primary importance. Other improvements should follow in due time and be integrated with the projects included in this program.

The inter-community traffic within the Pittsburgh Metropolitan Area is heavy in many locations. The system of inner and outer belt-line highways as approved by the Allegheny County Traffic and Transit Commission are of great importance in answering this problem. The elimination of deficiencies existing on this belt-line system of roads is a problem of somewhat different nature. While it should not be overlooked, it does not belong in this group of major improvements.

PITTSBURGH

The major highway problem in Pittsburgh essentially consists of the unsatisfactory east-west and north-south highway arteries. Streets designed to meet Pittsburgh's local needs over a century ago now serve a vastly different traffic pattern in an unusually difficult terrain. Entirely new facilities suitable for future Trunkline needs must be integrated with the present local street system at strategic points to provide satisfactory traffic distribution and movement.

Proposed Penn-Lincoln Parkway Improvements

The construction work underway for the Penn-Lincoln Parkway as of January 1, 1950, extended into Pittsburgh from the east to a point near the eastern entrance of the Squirrel Hill Tunnels. Another isolated section (approximately two miles long) across Junction Hollow over the Baltimore and Ohio Railroad tracks was also under contract as of that date. The completion of the Squirrel Hill Tunnel and the balance of the improvement to the Point Bridge and thence to the western city line, including interchanges as planned and agreed to, are awaiting completion and are included in this program.

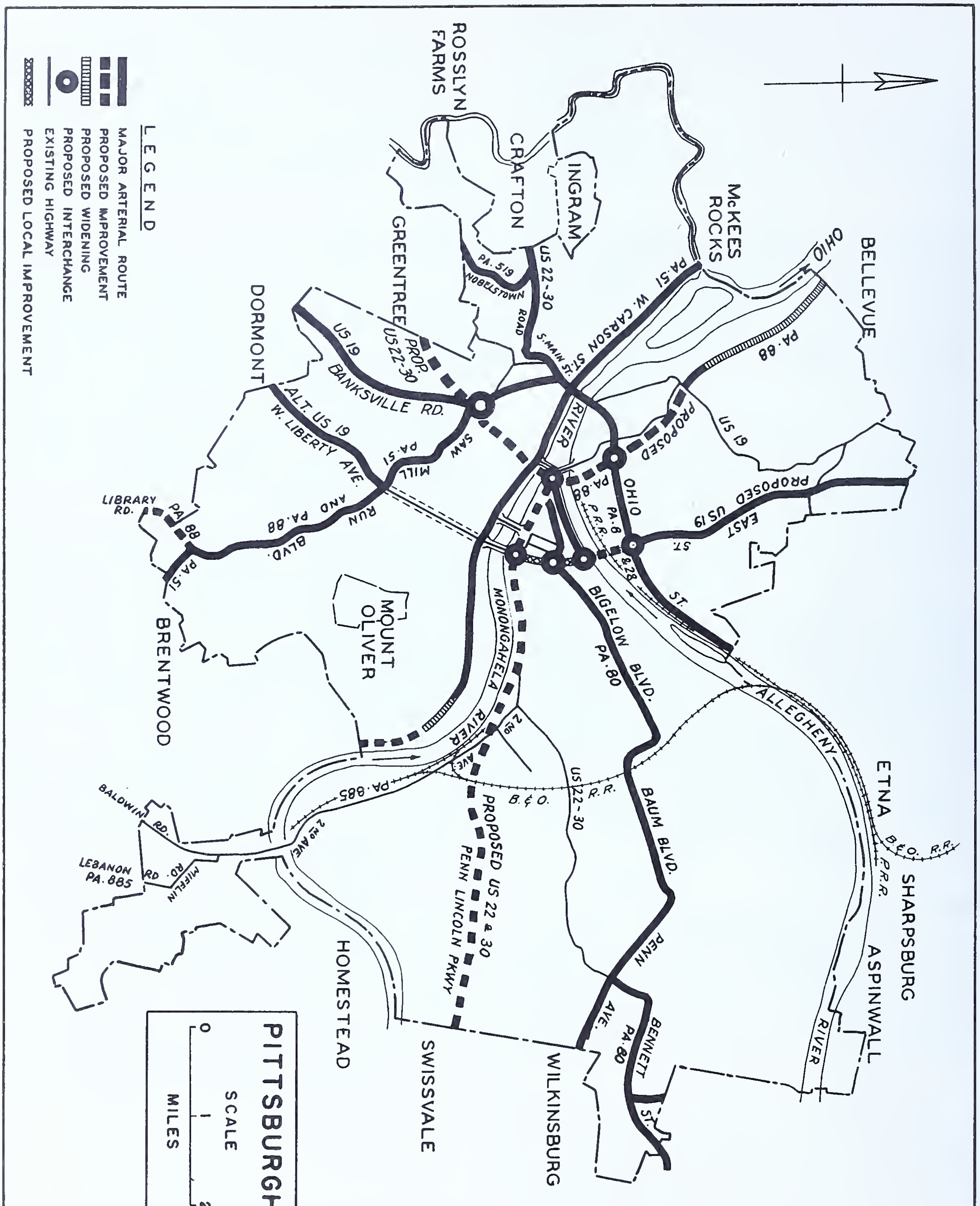
The remaining construction of the eastern part of this Parkway (especially for the Downtown Interchange) is difficult because of steep hillsides, public utility facilities and existing streets and buildings - all of which must undergo readjustments to make room for this six-lane Trunkline leading into downtown Pittsburgh. For several years the plans were in the development stage, until it was agreed that they provided an adequate and practical answer for an estimated traffic flow of more than 45,000 vehicles per day seeking a way into and through downtown Pittsburgh from the east and west.

The location for developing this new east-west Trunkline through Pittsburgh is shown on the Pittsburgh map. The plans for this improvement have been studied by the Commission. It recommends the work, including the construction of the proposed Duquesne Heights Tunnel, be undertaken as conditions permit.

Although the Downtown Interchange is the most difficult section of this parkway to build, its justification is also based on the free and direct flow of traffic it will provide to outer points within the city and to areas within the Golden Triangle. The inadequacy of the downtown streets to accommodate Trunkline and local traffic with reasonable freedom of flow demands a major attack on the whole problem. Circumferential boulevards around the Triangle integrated with the Penn-Lincoln Parkway at the Downtown and Point Interchanges are believed to provide the best answer. These local boulevards are being developed at local expense because of the definitely local problem they answer.

Pa. 88 (Ohio River Boulevard) Improvements

Twenty years ago this Boulevard (Pa. 88) was built by Allegheny County from the Bellevue borough-Pittsburgh city line to Marshall Avenue on U.S. 19 in Pittsburgh. The roadway width (including that on several sizeable bridges) was 40 feet, except for the portion within the California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PROPOSED INTERCHANGE
EXISTING HIGHWAY
PROPOSED LOCAL IMPROVEMENT
ROSSLYN FARMS
CRAFTON
INGRAM
McKEES ROCKS
BELLEVUE
GREENTREE
DORMONT
BRENTWOOD
MOUNT OLIVER
HOMESTEAD
SWISSVALE
WILKINSBURG
ETNA
SHARPSBURG
ASPINWALL
OHIO
RIVER
MONONGAHELA RIVER
ALLEGHENY RIVER
PA. 519
NOBELSTOWN ROAD
US 22-30
S. MAIN ST.
PA. 51 W. CARSON ST.
PA. 88
PROPOSED
US 19
OHIO
PROPOSED US 19
EAST ST.
PA. 8
PA. 8 & 28
P.R.R.
PROP. US 22-30
US 19
BANKSVILLE RD.
SAW MILL RUN AND PA. 88 BLVD.
PA. 51
ALT. US 19
W. LIBERTY AVE.
LIBRARY RD.
PA 88
PA. 51
BIGELOW BLVD.
PA. 80
BAUM BLVD.
PENN AVE.
BENNETT ST.
PA. 80
US 22-30
B. & O. R.R.
2ND AVE.
PA. 885
PROPOSED US 22 & 30 PENN LINCOLN PKWY.
BALDWIN RD.
MIFFLIN RD.
LEBANON RD
PA. 885
B. & O. R.R.
P.R.R.

Avenue Interchange which consists of two 24-foot lanes. Since the average daily traffic on this Boulevard within Pittsburgh's city limits is 24,000 vehicles - nearly 25 percent of which are trucks - a center line divisor with an additionally paved width is essential for safety.

From Marshall Avenue (U.S. 19) to the proposed Point Interchange on the Penn-Lincoln Parkway, Ohio River Boulevard traffic is seriously penalized. Alternate routes through this section are served by very unsatisfactory streets. Despite their narrow widths and sharp turns, however, they are the best links now available to connect the four-lane Ohio River Boulevard on the north with the Golden Triangle and the proposed Point Interchange of the Penn-Lincoln Parkway on the south.

A newly located four-lane limited-access divided Trunkline from the end of the present four-lane Ohio River Interchange on the Penn-Lincoln Parkway is believed to offer the only satisfactory solution. It has been studied at different times during the past several years by the Department of Highways cooperating with local planning agencies.

A new double-deck bridge over the Allegheny River located upstream from the present Manchester Bridge would serve this newly located multiple-lane Trunkline connection with the Ohio River Boulevard. This Trunkline would require a short tunnel and some viaduct construction.

This improvement should be undertaken as soon as conditions permit, keeping in mind the great strategic importance of this connection in this industrial area in time of emergency.

Pa. 837 (East Carson Street) Improvements

Pa. 837 along the Monongahela River is in unsatisfactory condition with inadequate width for a distance of 1.4 miles between the Jones and Laughlin Steel Corporation south side plant and the Pittsburgh city line.

This thoroughfare carries traffic of 11,000 vehicles per day and is seriously congested. Its paved width for 0.6 mile is only 26 feet and 36 feet for the rest of the way.

Beginning at the Jones and Laughlin plant for a distance of 0.8 mile toward the city line, it is proposed that the present 36-foot pavement should be widened six feet and resurfaced. The resultant 42-foot roadway is the maximum width obtainable because of the crowded conditions consisting of railroad tracks on the left and a hillside on the right.

For the remaining 0.6 mile toward the city line it is proposed to build a new pavement 50 feet in width with a divisor and curbs. This too is in a restricted area making it impossible to secure additional width, despite the fact that the traffic within the lifetime of the improvements is expected to be nearly 17,000 vehicles per day.

Pa. 88 (Library Road) Improvements

This artery is used by 9,500 vehicles a day. Within the next few years its daily traffic will approximate 14,000 vehicles. From the intersection of Pa. 51 extending south to Castle Shannon - a distance of 0.7 mile - the pavement width is only 18 feet and alignment is poor. Widening this route in limited areas is impossible without incurring heavy damages.

After discarding the present pavement, improving alignment and acquiring the necessary adjacent property, a new pavement 48 feet in width should be constructed throughout this 0.7 mile section.

East Street (Proposed U.S. 19) Improvements

U.S. 19 is proposed to enter Pittsburgh by way of McKnight's Road and proceed over East Street to Ohio Street. (See map and text for Pittsburgh Metropolitan Area.) Entering the city, it now has a paved width of 44 feet for 2.7 miles - 0.2 mile approaching Ohio Street is only 36 feet wide. Within the next few years U.S. 19 traffic using this thoroughfare (exclusive of local traffic) will approximate 14,000 vehicles per day. The 44-foot pavement section can be made to serve reasonably well during the next 12 years but should be widened to 50 feet not long thereafter.

Resurfacing and widening the 36-foot section of pavement 12-feet will make it adequate to meet future 12-year traffic needs, provided its design is integrated with the Ohio Street Interchange.

East Street Extension (Proposed U.S. 19) Improvements

Ohio Street in the vicinity of East Street has a paved width of 45 feet. Streetcars use this street which has an average daily traffic of 24,000 vehicles. If a large portion of the proposed U.S. 19 traffic from East Street - amounting to 14,000 cars per day - is discharged on Ohio Street, it will create an intolerable condition.

There can be no satisfactory solution to this problem until the Duquesne Crosstown Connection from the proposed Downtown Interchange of the Penn-Lincoln Parkway to the Allegheny River is completed as now proposed by the City of Pittsburgh and Allegheny County. Such a plan must be integrated with the Penn-Lincoln Downtown Interchange, involving many factors which make this improvement essentially a local responsibility.

By extending East Street, which necessitates the removal of buildings and acquiring an adequate right-of-way, a new thoroughfare may be projected to and across the Allegheny River connecting with the northeastern apex of the circumferential highway around the Golden Triangle. Such an extension including a new bridge should have a roadway width adequate for six lanes of traffic. This extension should be designed with an interchange at Ohio Street to avoid serious conflict with heavy east-west and north-south traffic. It should cross the Pennsylvania Railroad on the north side of the Allegheny River and be designed to provide free movement of traffic at the intersection of the Duquesne Crosstown Connection at the apex of the Triangle.

This improvement would permit U.S. 19 traffic entering Pittsburgh from the north or south to travel directly through the business district of Pittsburgh, and yet have sufficient interchange with the local city arterials. This route would necessitate the use of the Liberty Tubes and would also pass through an interchange with the Penn-Lincoln Parkway.

It is recommended that the widening of East Street for a distance of 0.2 mile adjacent to Ohio Street be undertaken as soon as practicable. Early studies also should be undertaken to determine the most feasible design for an extension of East Street including the interchange at Ohio Street, a new bridge over the Allegheny River and an interchange at the end of the proposed Duquesne Crosstown Connection at its intersection with the multiple-lane pavement along the south banks of the Allegheny River.

The present traffic pattern in downtown Pittsburgh together with the effect of other proposed improvements indicates that this project cannot long be postponed. Until its completion, Pittsburgh will be penalized by serious congestion on its local streets which serve as approaches to the Ninth Street Bridge which would temporarily become the most logical crossing.

Other Improvements

It is believed that the major improvements as recommended will largely accomplish a modernization of the principal Trunklines and arterials through Pittsburgh. These are of primary importance. Naturally, other highway problems continue to arise and further improvements will have to follow in due time and be integrated with these projects.

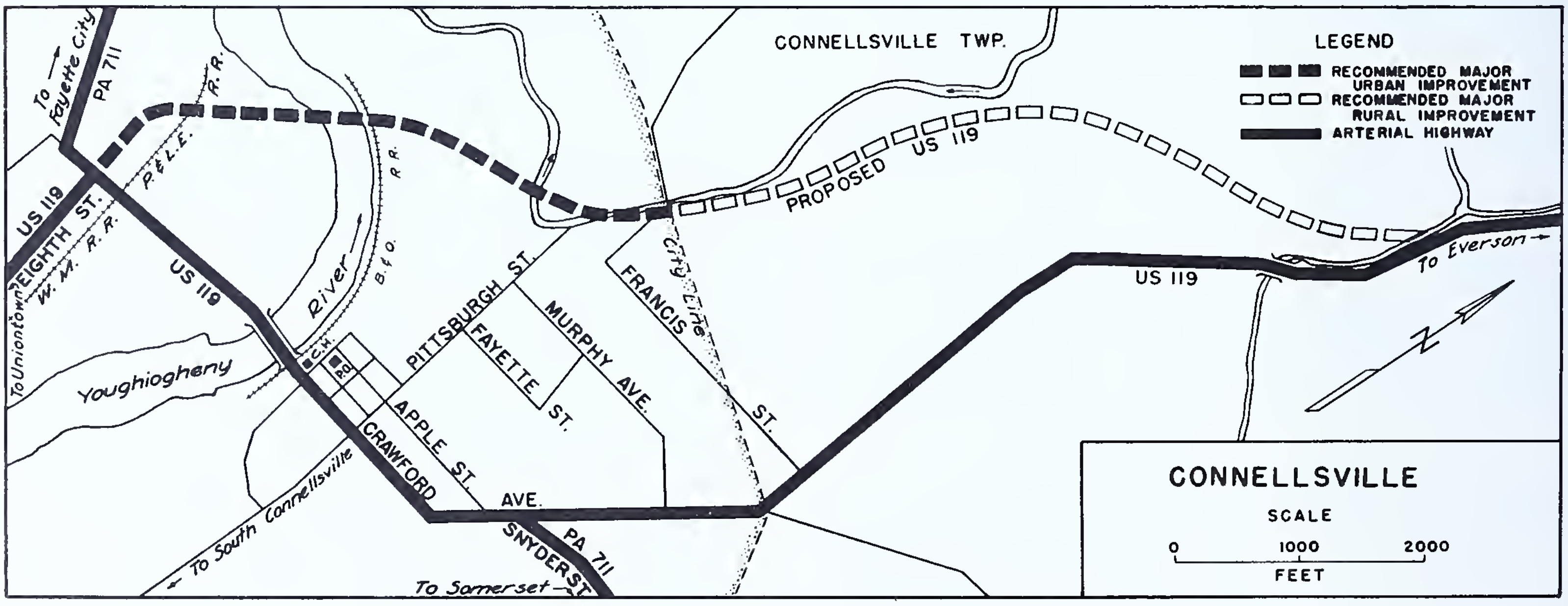
CONNELLSVILLE

In going through Connellsville, U.S. 119 follows narrow streets, has a long steep grade, crosses the Baltimore and Ohio Railroad at grade and crosses the Youghiogheny River over a narrow bridge which has a streetcar track. In the central city there is an average daily traffic of 11,000 vehicles, 35 percent of which is trucks. The conflict between the movements of local and Trunkline traffic penalizes both severely. Only delays and confusion can result on a so-called Trunkline street having such limited capacity, interference of an important railroad grade crossing and an adjacent narrow bridge--all within the business district.

Proposed By-Pass

The topography and developments within and adjacent to Connellsville call for a by-pass around the business district - located approximately as is shown on the map. Such a plan would require one bridge to span the Youghiogheny River and the Baltimore and Ohio Railroad. The proposed by-pass should cross the Pittsburgh and Lake Erie tracks by means of an existing underpass.

The right-of-way should be adequate for a four-lane road where possible. At least it should accommodate a 36-foot pavement to serve an estimated annual daily traffic of 8,000 cars by 1980. Such an improvement within the city limits of Connellsville would be one mile in length. The connecting section in Connellsville Township would be 1.3 miles. It should be a partially limited-access highway with a connection on the north side of the Youghiogheny River for access to or from the business district.



WASHINGTON

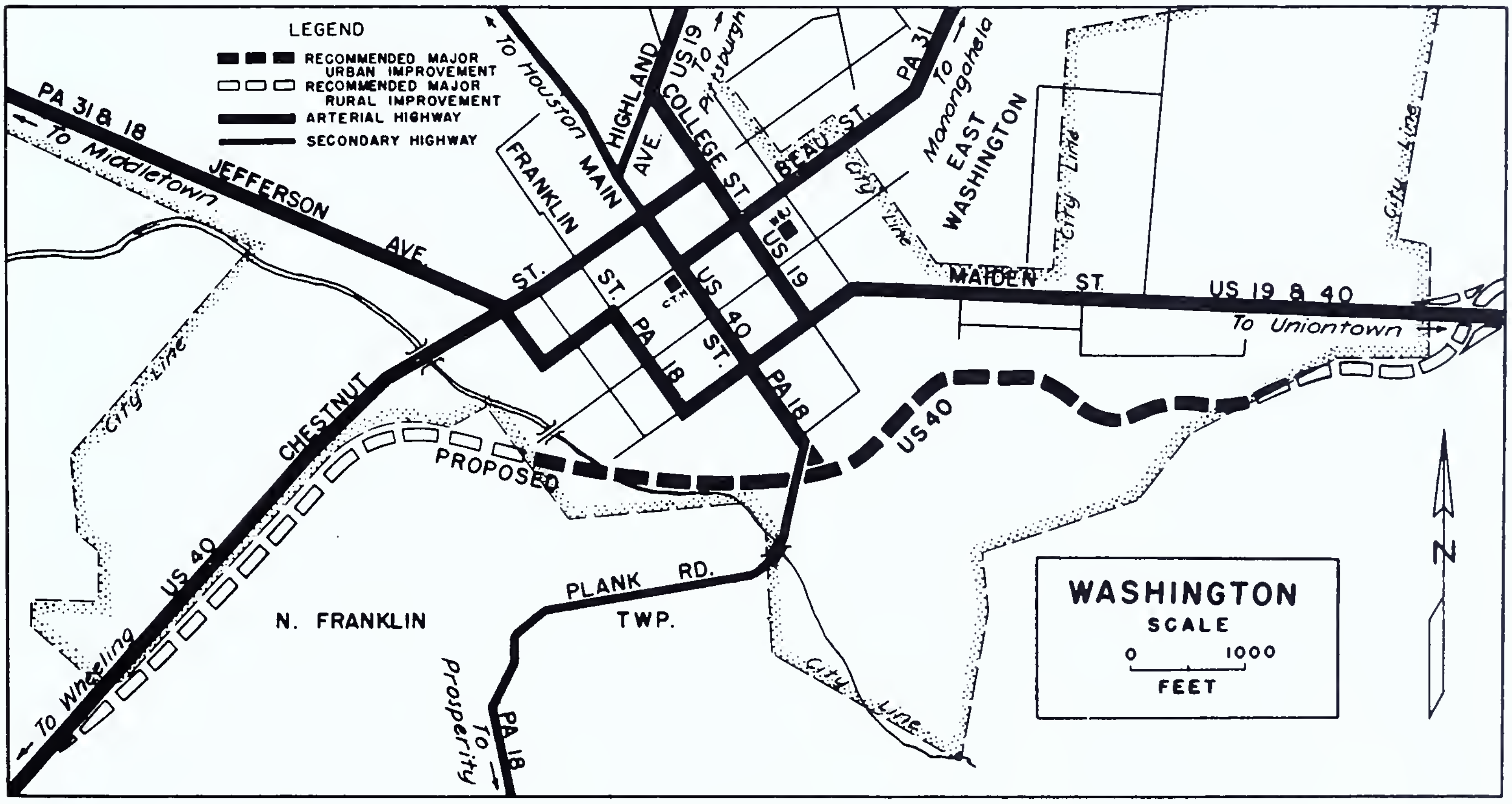
Converging on Washington from several directions are five important State highways (U.S. 40, U.S. 19, Pa 114, Pa. 31 and Pa. 18) with the average daily 1950 traffic at the city line ranging upward to 8,200 vehicles.

When the new four-lane divided free highway with turnpike characteristics now under construction is completed from Washington to the New Stanton Turnpike Interchange, considerable traffic will focus on Washington. This will only aggravate the problem. (See map.) The highway Trunklines entering from any direction are routed through or closely adjacent to the main business district of the city where there is a heavy concentration of business enterprises.

Proposed U. S. 40

The Commission recommends a "Proposed U.S. 40" to the south, as shown. By means of a channelized intersection with U.S. 40 near the western city line, this proposed by-pass would become a limited-access highway. It will have an interchange at lower Main Street (Plank Road - Pa. 18) and an interchange with U.S. 40 (Maiden Street) near the eastern city line at its junction with the four-lane divided highway leading to the Turnpike. Off-center construction of two 12-foot lanes with a graded roadway adequate for four lanes are recommended as a first stage. Thereafter, when conditions require, the additional two lanes should be added.

Such a plan would provide light grades and good alignment, avoid subjecting through traffic to the difficult conditions now encountered on Washington's streets, relieve the crowded conditions on Maiden Street and develop highly desirable Trunkline characteristics for U.S. 40 in this area. This relief would benefit U.S. 19 and Pa. 18 traffic by reducing interference over city streets. The lower Main Street extension interchange (Pa. 18) would provide an easier access to sections of the business district for east or westbound U.S. 40 traffic.



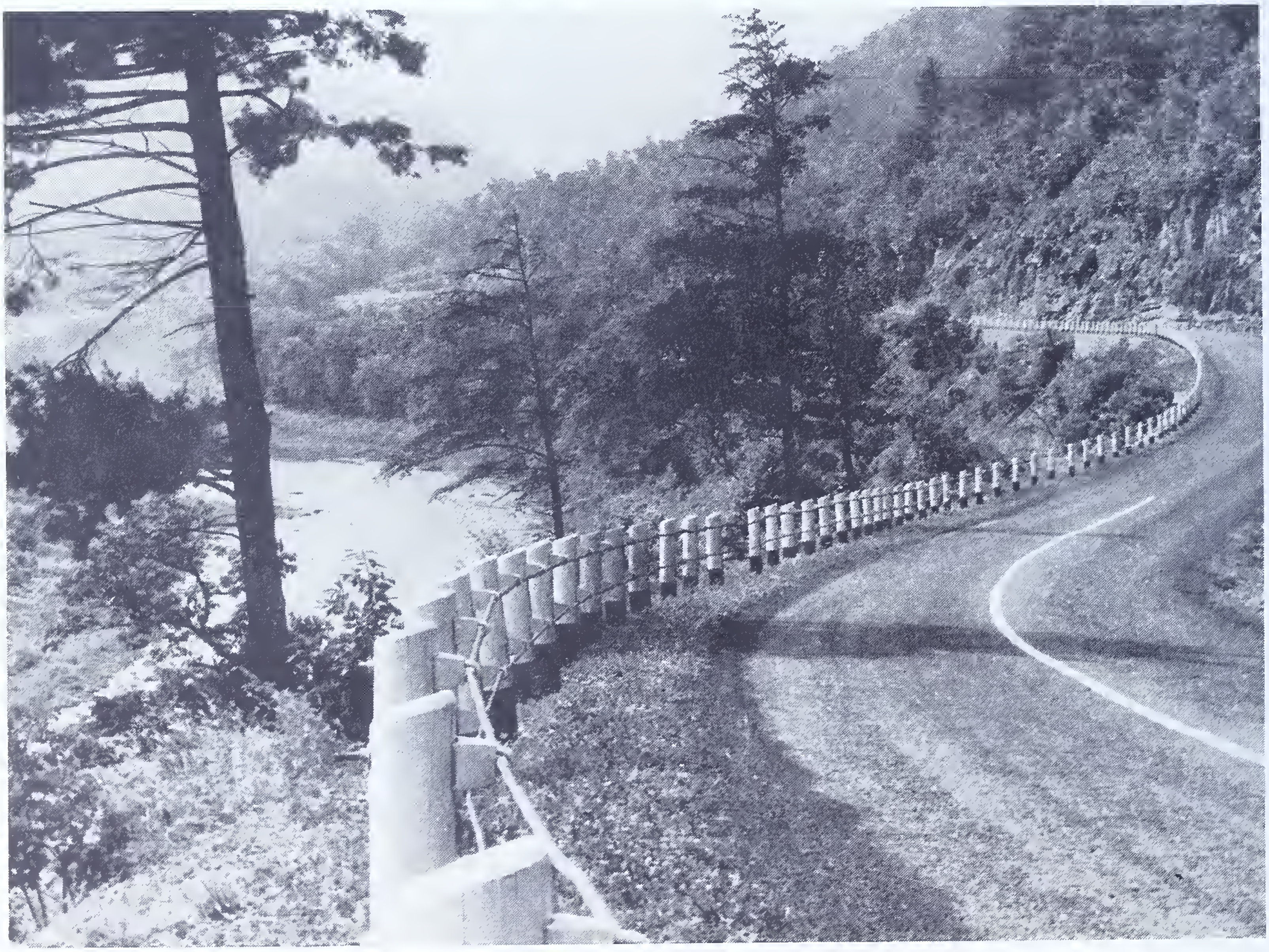
Intercommunity Road System

The expenditure of $326 million proposed for the Intercommunity Road System and its bridges does not convert it in any substantial way from a two-lane to a multiple-lane system, as the Trunkline System would be transformed. At present, 82 percent of the Intercommunity Road travel is on two-lane roads (most of which are in the lightly traveled rather than the moderately traveled group). After completion of the proposed improvements, substantially the same percent of the System travel would still be on two-lane roads, since almost all of the mileage proposed for improvement would continue to be two-lane mileage after its improvement. These two-lane roads now make up 96 percent of the System mileage. After improvement, 95 percent of the mileage will still be two-lane. The primary purpose of the improvement program has been to produce an improved two-lane road system, not to step it up to a multiple-lane affair.

This purpose is additionally evidenced by the fact that only 12 percent of the proposed road expenditure is for roads which after their improvement would have more than two lanes—the rest is for changing inadequate two-lane roads into better two-lane roads. Out of more than 10,000 miles in the System less than 100 miles, or one percent, are changed from two to three lanes. Thirteen additional miles are changed from three to four lanes.

What then is done to the Intercommunity System and what changes are accomplished in the System? What sort of a System emerges?

The answer is that through the proposed expenditure a rather poor two-lane system is transformed into a good two-lane system. Now 40 percent of all vehicle-miles of travel on the System are on roads of



This mountain road is typical of those in the Intercommunity System.

inadequate lane width. All of these width deficiencies will be eliminated.

The pavement will be renewed and strengthened. Limited reconstruction will result in the resurfacing of 3,338 miles. New construction of 1,261 miles will provide that many more miles of new surface in place of badly deteriorated surface. Consequently, out of the 10,365 System miles, the 4,599 miles with defective pavement surfaces will all be resurfaced. In the process also, there will be a trend towards better types of surface. Of the 1,261 miles proposed for new construction, for example, 550 miles now have light-type pavements. In the reconstruction all but four miles would be changed to a high-type flexible or rigid-type pavement.

Not much straightening of the System will be necessary. Only 454 inventory sections out of 4,675 for the System showed bad curves. These can be corrected through only 214 miles of road relocation.

The System emerging from the proposed construction program will not be spectacular. It will consist largely of rather lightly traveled, somewhat ordinary two-lane roads. But they will have adequate width throughout and smooth road surfaces. Their grades will be moderate and their alignment good. They will constitute probably the most pleasant system of Pennsylvania roads to use.

Community Service Road System

The Community Service Road System is essentially a rural system — 98 percent of its 14,748 miles lies outside the boundaries of cities, boroughs and townships having as much as 10,000 population. Generally speaking its mileage is drawn from the more heavily traveled and better developed portion of the "Pinchot Roads."

This mileage carries a light traffic very largely local in nature and familiar with the road being used. It accommodates seven percent of the highway traffic in the Commonwealth and is the beneficiary of six and a quarter percent of the total road and bridge outlay recommended by the Commission for the next 12 years.

This expenditure will reconstruct, with a bituminous type of surface, 700 miles of what is now dirt or sometimes stabilized road. It will reconstruct 400 miles of the more heavily traveled sections where traffic - in number or size of vehicles, or both - has grown to a point where it exceeds the safe and comfortable capacity of the road. It will take out the worst curves and grades, widen the narrower sections and correct points of hazard in the remaining miles of the System. It will reduce by half the number of bridges that have had to be posted against heavy loads.

The proposed expenditure will produce a System well devised for the purposes it serves. There is no thought in mind of converting any of these roads into speedways. Most trips over this mileage are short and need not be made at high speeds. The roads will be winding and there will be occasional heavy grades, especially in the mountainous parts of the State. The amount of traffic on the typical Community Service Road, however, is so small that even with poor alignment instances of a slow-moving vehicle holding back one which wishes to pass will be rare. Throughout its length the System will measure up to the tolerable road standards for the amount of traffic it carries.

Of the recommended expenditure on this System a larger proportion is for the improvement of its bridges than is the case for any of the other three Systems. Nevertheless, at the end of the 12-year period there will remain on it one posted bridge out of eight as against one out of four at the present time. The Commission does not feel that this will be serious. There will be little or no necessity for very heavy vehicles to use most of the roads where bridges will be sub-standard. Since little of this mileage is "dead-end," there will always be an alternative way to reach a destination on the far side of a weak bridge if necessary.

The System will form a comfortable connecting link between the roads of more general use and those of purely local use.

Local Road System

The Local Road System cannot be considered as a single entity. Aside from being made up of a large number of separate little road networks - each serving its own local area - it divides basically into urban and rural portions. Though both have the single characteristic of serving a purely local function, they are radically dissimilar. In comparison with the amount of traffic on an isolated rural Local Road leading to three or four remote homes, even the more lightly traveled neighborhood streets in cities are busy.

The rural road is narrow as a rule and its traffic volume will support economically only a low-type surface. The city street is much wider, but despite the greater pavement area to be maintained, it serves enough traffic to give a sound economic justification for it to be paved. Much the greatest part of the urban Local Road mileage has a bituminous pavement, or better. In contrast, two-thirds of the 59,000 miles of Local Roads are now, and for the most part will have to remain, below the level of a bituminous surface. Their traffic is too light to make such surfacing economically practicable.

Good roads of this type have proved themselves adequate for relatively light travel in rural areas. They must, however, be carefully maintained.

THE COST OF BITUMINOUS ROADS

In order to have a correct understanding of the rural Local Road problem, it must be realized that it is not the amount of construction cost that puts a ceiling on the level of improvement to which a road can wisely be brought. Rather, it is the continual year-by-year maintenance and replacement cost. Earth roads and stabilized roads, having the traffic volumes to which they are suited, are ordinarily the cheapest roads to maintain. The addition of even a light bituminous surface not only adds much to the construction cost but also results in a very large jump in maintenance costs as well. This is brought out in Table V-1.

The figures above do not tell the entire story. The bituminous surface requires replacement every few years at a replacement cost which converted to an annual basis would be the equivalent of another $200. There is no such replacement cost in the earth road. The stabilized road also needs restabilization at intervals but at a much lower cost than that of resurfacing a black-top road. This is offset in part by ordinary maintenance costs generally a little below those for earth roads.

The relatively high maintenance and replacement cost of bituminous-treated roads is the basic reason why, in virtually all parts of the United States, it has been found impractical to bring very lightly traveled roads to the level of a bituminous-treated surface.

In Pennsylvania, as elsewhere, the annual cost of maintaining 59,000 miles of rural Local Roads builds up to a large total. If in some way all of the Local Road mileage (two-thirds of which is now either earth or stabilized) could be given a bituminous surfacing immediately, next year's maintenance costs would be increased by one-half or two-thirds. This of course, would be a heavy additional charge against available revenues; and a few years later the need of retreatment of the bituminous mileage would pose another baffling problem.

STABILIZED ROADS

At public hearings held by the Commission some dissatisfaction with the behavior of stabilized roads during the past two winters was voiced. The Commission has studied the records of the U.S. Weather Bureau for the winters of 1948-49 and 1949-50.

The six winter and spring months of 1948-49 had an unusual amount of wet and thawing weather - far above the average for the State. These conditions were particularly hard on stabilized roads. Conditions in 1949-50 were even worse, with much more warm wet weather and alternate freezing and thawing.

The Commission is convinced that the extremely abnormal and unfavorable weather of the past two years, rather than anything inherently unsound in a well stabilized road, led to the conditions complained

Table V-1

ANNUAL PER MILE COSTS OF BASE AND SURFACE GENERAL MAINTENANCE, BY TYPE OF SURFACE

1948-49

	Earth Roads	*Stabilized Roads*	*Light-Type Flexible Surface Bituminous Roads*	*Cost Ratio - Bituminous to Earth Roads*
State Highway System	$106.60	$130.24	$176.04	1.65 to 1
State Rural System	106.19	88.39	142.89	1.35 to 1
Extensions-Boroughs	151.10	114.73	250.27	1.65 to 1

of. The evidence is that during a normal year a well stabilized road has given both satisfactory and economical service.

THE 12-YEAR PROGRAM FOR RURAL LOCAL NEEDS

If the reconstruction proposed by the Commission for the improvement of rural Local Roads is carried out, the surface type of the 59,000 miles of the System will be approximately as follows:

Concrete and other rigid types	1,000
High-type flexible (bituminous)	9,000
Light-type flexible (bituminous)	9,000
Stabilized	20,000
Earth	20,000
Total	59,000

The Local Service Roads will consist entirely of stabilized or better surfaces. The 39,000 miles of Property Access Roads will contain about 3,000 miles of paved surface. It will have about 16,000 miles of stabilized roads and 20,000 miles of earth roads.

As stated in Chapter IV, all rural mail delivery travel will be over all-weather surfaces. Since the rural mail routes make the most extensive and regular use of the Local Road System, it may be presumed that the other categories such as the school bus and passenger bus routes, milk-collection routes, etc., which make less extensive use of the roads would also be completely serviced by all-weather roads. Moreover, the very great majority of all-year rural dwellings will be located on such roads. Under this program the development of the Local Road System will have been carried as far as can be justified by conditions as they now exist or as they appear likely to be within the next 12 years.

Recommendation on Planning

In the execution of this 12-year program much further planning both for State highways and for their proper integration with local projects will be needed. The Department of Highways has made substantial progress in its long-range planning activities through the establishment of its Highway Planning Section.

The Commission believes that this Section should be expanded and strengthened to whatever extent may be necessary in execution of this program. As discussed in Chapter VI, it is desirable to coordinate the planning activities of the Department with local planning activities.

VI

HIGHWAY ADMINISTRATION

Proposed Responsibility for the Classified Systems

PRESENT OWNERSHIP

The State owns and maintains 40,940 of the 99,785 miles of road in Pennsylvania or 41 percent of the total. Only five states own a higher percentage of their total road mileage. Throughout the country only 18 percent of the total mileage in the United States is owned by the states themselves.

There is no magic formula for determining how much of the total mileage in any state should be owned and maintained by the state itself. Economic and political conditions vary widely, making it necessary for each state to work out its own division of responsibility with local governments.

Table VI-1 shows the present ownership of the classified Systems.

The State now owns all but 61 miles of the Trunkline System and all but 214 miles of the Intercommunity System. Local governments own 1,196 miles, or less than 10 percent, of the total Community Service Road mileage. Of the 9,447 State-owned miles in the Local Road System, 8,896 miles, or 94 percent, are located in townships of the second-class. (See Table VI-3.)

PROPOSED OWNERSHIP OF THE FIRST THREE CLASSIFIED SYSTEMS

The Commission believes that assignment of road responsibilities should be made as much as

Table VI-1

PRESENT OWNERSHIP OF CLASSIFIED MILEAGE

(Projected for 1962)

	Trunkline Highways	*Intercommunity Roads*	*Community Service Roads*	*Local Roads*	*Total*
State	7,790[a]	10,151	13,552	9,447	40,940
County	11	156	275	321	763
City	43	21	22	5,620	5,706
Borough	6	13	33	5,680	5,732
First-class townships		2	20	1,681	1,703
Second-class townships	1	22	846	44,072	44,941
New	78[b]				78
Total	7,929	10,365	14,748	66,821	99,863

[a] Does not include Pennsylvania Turnpike mileage.

[b] Included here are roads, generally in urban areas, which are required as additions to the Trunkline System.

possible according to the proposed classified Systems. Two important questions, however, have to be answered in any examination of road ownership:

1. What division of responsibility in road ownership will give Pennsylvania motorists the best all around network of highways with no one system benefiting at the expense of another?
2. What kinds of roads are the State and its various political units best able to construct and maintain?

Trunkline and Intercommunity Systems. Few, if any, second-class townships are equipped or can afford to build and maintain three- or four-lane highways such as are found on parts of the Trunkline and Intercommunity Systems. Furthermore, even if the other local units were equipped to build such roads and wished to do so, it would not be in the public interest. There would be disjointed sections of highway with varying degrees of improvement. This situation was recognized as early as 1911 when the State Highway System was established.

Still, there are 61 miles of Trunkline System mileage and 214 miles of Intercommunity System mileage which are not owned by the State. This mileage is a relatively small amount but it should be transferred to the State if it is to receive equal treatment with the other sections of the Trunkline and Intercommunity Systems. The local governments which now maintain these highways should not be required or expected to construct and maintain such roads of general statewide interest.

Community Service System. The Community Service System presents a different problem from that of the Trunkline and Intercommunity Systems. The Community Service System includes, for the most part, two-lane roads with improved surfaces. In some instances the local governments are equipped to construct and maintain these roads but this is true only of the larger political units.

There are important reasons why the mileage on the Community Service System should be maintained by the State:

1. These roads are of statewide interest and importance. They furnish the principal access for many small and medium-sized communities, connecting them with each other and with important urban centers. They are essential to agricultural marketing and to rural community life, as described in Chapter II on Road Classification.
2. Most of the local units in which the Community Service mileage is located are not equipped to maintain effectively roads with such high-type surfaces.

Most of the Community Service Roads (13,552 miles) already are part of the State Systems. The shifting of the locally-owned mileage on the Community Service System to the State will involve the transfer of only 1,196 miles.

City of Philadelphia. The division of ownership of the Trunkline, Intercommunity, and Community Service mileage in Philadelphia is shown in Table VI-2.

The 1949 legislature reduced the State-owned mileage in Philadelphia from about 150 miles to 100 miles by returning 60 miles of street to the city and taking over about 10 miles. This was in accordance with an agreement between the Department of Highways and the city whereby the State agreed to assume responsibility for constructing the Schuylkill Expressway, the Vine Street Extension from the Delaware River Bridge to the Expressway and other major urban projects in Philadelphia, providing the city would consent to the return of this 60 miles of State highways.

Some of the 60 miles returned to the city are on the Trunkline, Intercommunity, or Community Service Systems as classified by the Commission. Regardless of classification the Commission does not propose the transfer at this time of any mileage within the City of Philadelphia because an arrangement for highway ownership and construction now exists which carries moral obligations on the part of both the State and the city.

Table VI-2

OWNERSHIP OF TRUNKLINE, INTERCOMMUNITY AND COMMUNITY SERVICE ROADS IN PHILADELPHIA

Road System	*State*	*Mileage* *City*	*Total*
Trunkline	73.6[a]	31.2	104.8[a]
Intercommunity	6.5	15.9	22.4
Community Service	2.3	9.4	11.7
Total	82.4	56.5	138.9

[a] Includes 14.6 miles of new roads.

County roads and bridges. The Commission believes that all of the Trunkline Highways, Intercommunity Roads and Community Service Roads and bridges nowowned by the counties should eventually be transferred to the State. For the time being, it is recognized that in metropolitan areas there are circumstances where the counties play an important part in local highway situations (as to finance, construction and maintenance) and can render valuable assistance to the State in administration of the road program. Being sensitive to local needs and at times more flexible than the State in their operations, counties occassionally can remedy highway deficiencies more rapidly, even on roads that may be recognized as having statewide importance.

Furthermore, some counties maintain excellent highway organizations which could be badly disrupted by abrupt transfer to the State of all Trunkline, Intercommunity and Community Service mileage now under their ownership.

Accordingly, it is recommended that counties be given the option of objecting to such transfer in which case the transfer would be deferred until agreed to by the county. Unless there is such an objection, the transfer would become effective. The same would be true of county-owned bridges on these Systems.

PROPOSED OWNERSHIP OF LOCAL ROADS

The Local Road System consists solely of roads which provide access to homes, farms, schools, churches, recreational centers and scattered commercial enterprises such as coal mines and quarries. They are strictly of local interest. Some of these roads have improved surfaces and some have traffic-bound surfaces which permit year round travel; but others, especially in rural areas, are virtually impassable at certain times.

Table VI-3 shows the State-owned Local Road mileage located in the various political subdivisions.

Cities, boroughs and first-class townships. As shown in Table VI-3, the transfer of State-owned Local Road mileage to cities, boroughs and first-class townships involves relatively little mileage. As each of these units will in turn lose Trunkline Highways, Intercommunity Roads and Community Service Roads to the State, the exchange of highway mileage results only in small net gains. (See Table VI-4.) Moreover, since the State will acquire mileage which is generally more expensive to operate, many of these local units will find their financial burden has not been increased even though their total local mileage is somewhat larger.

Second-class townships. In second-class townships the transfer of State-owned Local Road mileage is a more serious problem. It would result in a net gain of 8,028 miles or an increase of 18 percent in second-class township road mileage. This change would considerably enlarge the administrative burden of many units. The question then arises as to whether or not the townships should be required to assume this additional responsibility.

Table VI-3
LOCATION OF STATE-OWNED LOCAL MILEAGE

	State-Owned Local Mileage	*Percent*
City	142	1.5
Boroughs	212	2.2
First-class townships	197	2.1
Second-class townships	8,896	94.2
Total	9,447	100.0

Strong arguments can be brought forth in defense of either policy. The reasons for and against returning State-owned Local Road mileage to the townships can be summarized as follows:

Reasons Against Returning State-Owned Local Roads to Townships

1. If all State-owned Local Road mileage were returned to the townships, many roads which now have high-type surfaces would not be adequately maintained because the units in which they are located lack the necessary technical skill and equipment. The maintenance of blacktop roads especially requires considerably different techniques and equipment than that required for the maintenance of dirt and gravel roads. Unskilled work on blacktop roads results in high crowns, patch work which instead of binding the surface results in unevenness and improper surface sealing which permits water to enter and causes frost heaves.

   It is important, therefore, to strengthen the townships as effective units of Local Road administration in order that well improved roads will not suffer. Any general transfer should not be made until this has been done and only after the State and highway users can have adequate assurance that these roads will be effectively maintained.

2. Road classification determines the degree of improvement which any system of roads properly requires. If followed strictly by the Department of Highways, there should be no reason for expensive overdevelopment of unimproved Local Road mileage under State control.

3. The Department of Highways now has the experience, men and equipment to handle the Local Roads on its system, even though these roads are of local interest.

Reasons for Returning State-Owned Local Roads to Townships

1. Administration of Local Roads by local units of government will avoid needless State expense in maintaining them at standards not warranted by the service they provide. One motive for placing this mileage on the State Highway System originated from a desire to have these local highways improved and maintained according to standards which were higher than would ordinarily apply on these roads if locally maintained.

2. A transfer of Local Road mileage from the State to local units will strengthen local government by giving townships sufficient Local Road mileage to enable them to do an effective job. In many cases, a return of Local Roads would warrant the use of proper road equipment and the hiring of experienced personnel not justified for units maintaining only a few miles of road.

3. The administration of a highway program applying to mileage of only *local* significance is a different kind of problem than the administration of highway mileage of *statewide* interest which accommodates much heavier traffic. The organization, equipment and trained personnel required to build and maintain statewide roads is not readily adaptable to Local Road problems and vice versa.

RECOMMENDATION ON THE OWNERSHIP OF LOCAL ROADS

The Commission believes that eventually all these Local Roads should revert to local ownership.

If it could be shown conclusively that the second-class townships were able and willing to undertake the work involved, there would be little reason to oppose such a move at this time.

In the immediate future, however, it does not seem wise to propose a complete transfer. Those units which want to assume the responsibility should be encouraged to do so and it is hoped that they will sustain the Commission's faith in local operation. But no township should be forced to take additional mileage if it is unable to do so.

Furthermore, these transfers should not impose a financial problem on those communities accepting additional mileage. As explained in Chapter VIII, whenever the State turns back any Local Road mileage which cannot be exchanged for an equal amount of Community Service mileage, then additional State aid should be given to cover the costs of operating this mileage.

As shown in Table VI-l, the second-class townships now own 846 miles of Community Service Roads. These should be a responsibility of the State. Wherever possible this mileage should be exchanged for an equal mileage of State-owned Local Roads. When the townships receive State-owned Local Roads in place of their present mileage of Community Service Roads no problems should arise, particularly if such roads turned over by the State are in suitable condition. Furthermore, most of the roads which the second-class townships would receive from the State should be, by their nature, less expensive in the long run to maintain than the roads which they surrender. From a financial standpoint, therefore, the townships should benefit by this procedure.

Unnecessary roads. In its examination of all Local Road mileage in representative second-class townships, Commission engineers discovered that about seven percent of the Local Road mileage now owned by the second-class townships is no longer used by the public. These include roads which have degenerated into forest trails and are either unused or used only by hunters. They have all the characteristics of private roads. There is an estimated total of 3,900 miles of such roads throughout the State. Obviously, some provision should be made to drop such mileage out of the system of publicly managed highways. (See recommendations made later in this Chapter.)

SUMMARY

Two recommendations of the Commission propose transfer of road mileage depending upon the wishes of the local units concerned. Because the Commission has recommended that the transfer of mileage from the counties to the State and from the State to the second-class townships be left optional, it is not possible to state in exact terms the ownership of mileage which will result if the Commission program is adopted.

It is possible, however, to show mileage ownership under two sets of conditions. The first situation would exist if *no* optional transfers were made; the second situation would exist if *all* optional transfers were made. Table VI-4 shows ownership under the first situation and Table VI-5 ownership under the second.

Clearly, if no optional mileage is transferred, the subsequent exchange of roads does not involve major changes in highway administrative responsibility. On the other hand, if all optional transfers are made, then the second-class townships will have a bigger job to do while the State's work will diminish as will that of the counties.

It is believed that under this proposal, the eventual making of the optional transfers will bring about a plan of highway administration and responsibility consistent with highway use and service - with an equitable financial arrangement as described in Chapter VIII.

Table VI-4

OWNERSHIP PROGRAM OF ROAD MILEAGE WITH NO OPTIONAL TRANSFERS

	Now Own	*Would Own*	*Net Change*	*Percent Change*
State	40,940	40,650[a]	- 290	- .7
County	763	763		
City	5,706	5,761	+ 55	+ 1.0
Borough	5,732	5,892	+160	+ 2.8
First-class townships	1,703	1,879	+ 176	+ 10.3
Second-class townships	44,941	44,918	- 23	- 1.1
New mileage	78			
Total	99,863	99,863		

[a] Assumes that Local Road mileage can be exchanged for all of 846 of Community Service mileage acquired and that the State will own new mileage of 77.7.

Table VI-5

EVENTUAL ROAD MILEAGE OWNERSHIP IF ALL OPTIONAL TRANSFERS ARE MADE

	Now Own	*Would Own*	*Net Change*	*Percent Change*
State	40,940	33,042[a]	- 7,898	- 19.3
County	763	320	- 443	- 58.1
City	5,706	5,761[b]	+ 55	+ 1.0
Borough	5,732	5,892	+ 160	+ 2.8
First-class townships	1,703	1,879	+ 176	+10.3
Second-class townships	44,941	52,969	+8,028	+17.9
New mileage	78			
Total	99,863	99,863		

[a] Includes 77.7 miles of new roads.

[b] Approximately 60 miles of streets in Philadelphia have already been transferred to Philadelphia in line with 1949 legislation. If they were shown as part of Philadelphia's mileage as of January 1, 1950, a partial duplication would result depending on the classification of the above 60 miles.

RECOMMENDATIONS

The Commission submits the following recommendations with respect to road ownership and administration:

1. As a matter of policy, all Trunkline, Intercommunity and Community Service mileage should be transferred to the State. However, counties which have the organization and the desire to retain control of such roads and bridges should be allowed to do so. Provision should be made for transfer to the State of such roads now owned by counties unless a county registers objection to a transfer of a specific road. The present arrangement within the City of Philadelphia should not be changed.

2. As a matter of general policy, all Local Roads now on the State Systems should be returned to local ownership. However, because the problems involved at the level of the second-class townships, Local Roads should be transferred only to those units desiring to undertake the responsibility. In any case, the State should exchange Local Roads of its ownership for Community Service Roads belonging to second-class townships.

3. In order to avoid excessive financial burdens at the local level, all Local Roads transferred to the political subdivisions should be brought up to established standards before they are given up by the State.

Local Highway Administration

SECOND-CLASS TOWNSHIPS

The second-class townships are the most numerous and the simplest form of local government in Pennsylvania. For the most part they are governmental units of the rural areas. By far their most important responsibility is highway work.

The general supervision of road affairs is under three supervisors who are required by law to organize the township into one or more road districts and to appoint either a superintendent for the entire township or a roadmaster for each district.

Township supervisors may serve as roadmasters or superintendents provided they are physically able to work on the roads or they may employ others to perform these duties. Alternatively, the board of township supervisors may appoint a township engineer who must be a registered professional engineer. The work of such an engineer covers not only highway problems but may involve municipal improvements as well. This system of road management thus gives the townships considerable freedom in determining administrative policy but, with the exception of the township engineer, it does not require any technical skill on the part of those concerned.

A unique arrangement for the care of township roads is found in the provisions of the Losch Act[1]. This Act provides that, under certain conditions, a taxpayer in a township may petition the court of quarter sessions for the right to maintain township roads on his own property at his own expense. The court may then order the township and the taxpayer to enter into such a contract in which case no road tax is levied against this particular taxpayer. However, the supervisors are directed by law to inspect such roads monthly to be sure that the terms of the contract are being observed and thus to prevent the abuse of this privilege.

FIRST-CLASS TOWNSHIPS

First-class townships must have a population of 300 persons or more per square mile. Since they are more urban than second-class townships, they furnish a broader range of governmental services.

A financial incentive to change from second-class to first-class townships exists in that the first-class townships now receive a State highway subsidy of $394 for each mile of local road while the second-class townships receive only $110 per mile. (See Chapter VII.)

There is no consistent manner of carrying out the road function in first-class townships. Responsibility may rest on the board of commissioners as a group, individual commissioners in their own wards, the township manager (if appointed), an individual commissioner selected to head the highway department or a township engineer. The township engineer is appointed at the discretion of the board of commissioners for a term of two years and must be a registered civil engineer. His work is not restricted to road and bridge problems and he may be assigned to other municipal activities. Where no township engineer is appointed, there is no definite assurance that local roads will receive effective management.

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[1] This Act, passed many years ago, has been incorporated in the Second-Class Township Code. The present citation is Act of July 10, 1947, P.L. 1481, Art. XI, Sec. 1190-1196.

BOROUGHS

Responsibility for highway work within a borough falls upon the street commissioner, one member of council, or upon each member of council in his own district. Size usually determines policy with the smaller units depending upon council members. While the Borough Code lists a street commissioner as an appointive office, it does not mention any technical requirements for a person so chosen. Where council members manage the roads, a road foreman usually undertakes the actual work but no experience or technical qualifications are required here either. As a consequence, there is no requirement that skilled personnel be involved in highway management other than the self-interest of each community to see that capable people are chosen.

COUNTIES

With only a few exceptions, counties no longer have a major role in highway administration. They do, however, own and maintain a considerable number of bridges and are recipients of State financial aid.

Responsibility for the planning and management of highway work falls upon the county commissioners who initiate most road or bridge projects. To assist them they may appoint a county engineer who must be a registered professional engineer. The duties of such an engineer, however, are not confined to highway work, since he may also be concerned with other public projects or improvements. County road caretakers may also be appointed by the commissioners to inspect and repair public roads or highways. In addition, they are given certain powers to keep the peace along roads and to enforce observance of laws regulating vehicles.

The counties do not lack the power to conduct extensive highway and bridge work if it were shown that they should do so. Subject to approval by the grand jury and the court of quarter sessions, the counties can lay out road plans, condemn property and build and construct roads and bridges. To help finance their projects they may levy a road tax up to two mills. Once these facilities are built, the county has the duty to maintain them either by outside contract or with its own forces.

THIRD CLASS CITIES

Each city of the third class is required by law to organize a department of streets and public improvements which is headed by a member of council. It is also stipulated that council shall appoint a city engineer who must be a registered engineer. This officer is then responsible for such duties as may be given to him with respect to roads, streets, bridges and other public improvement programs.

The city engineer has complete direction and control over all engineering matters and no other department of the city can employ any additional engineer without the consent of council. Assistants and employees in the office of the city engineer must be appointed in accordance with civil service regulations which require that all applicants be able to pass an examination on their technical qualifications.

FIRST CLASS, SECOND CLASS AND SECOND CLASS A CITIES

The highway operations of these cities are currently covered by legislation for each unit rather than by codes. However, their organizations are essentially the same as the third class cities and, here too, road management must be conducted by qualified personnel.

GENERAL CONCLUSIONS

With the exception of the cities, there is no definite assurance that highway work performed by the political subdivisions will be surpervised by qualified or experienced personnel. Another serious weakness lies in the policy of permitting local road mileages to be divided among more than one local administrator because practically all such mileage is so small that it can be more effectively handled as a unit. On the other hand, placing road management in the hands of an experienced foreman or engineer, who is also responsible for other public works, is certainly a logical and efficient method of obtaining good technical supervision without having the cost become too burdensome.

RECOMMENDATIONS

In order to obtain a more effective use of local highway funds, it is recommended that the administrative practices of townships of the first and second class, boroughs and counties be revised so that:

1. All local road mileage will be administered as a unit and either one local official or several local officials acting as a single body be responsible for all roads.
2. Any person appointed as an administrative or managing head of any local highway organization, whether a foreman, supervisor, superintendent or engineer, should be required to have technical training or practical experience.

Highway Work Units

THE PROBLEM

Very often local government units do not have adequate road mileage or sufficient resources for efficient road maintenance. They are simply not large enough to reap the economies of modern methods of highway operation.

When the mileage of a local government goes below a certain minimum its operating efficiency is reduced. It cannot properly use men and machinery to produce the most results for the least dollars. There is not enough work involved in maintaining its highway system and as a result, the operations of these small units are inefficient and costly. In addition, low mileages often indicate very limited resources in men and money, so that when the desire exists for better roads, local revenue cannot support even a minimum program.

The desirability of having adequate highway units is obvious but there is no general agreement as to just what should constitute minimum standards for such units. Because variations in topography, climate, community development and road development tend to qualify any given set of standards, there is no single answer.

It also should be recognized that there is no uniformity of either mileage or degree of road improvement among the various political subdivisions of Pennsylvania. No one type of governmental organization is necessarily characterized by either small or large mileage. The degree of road improvement also covers a wide range. Table VI-6 shows how much difference actually exists among the boroughs and second-class townships under 5,000 population.

These variations in road conditions and in mileage increase the difficulty of measuring the efficiency of existing highway units and of comparing the effectiveness of one type of unit as against another. If all roads were identical, comparisons would be simple; but with so many dissimilarities in road characteristics any standards which are set must take into consideration the differences in local conditions.

Furthermore, a highway unit need not be elaborate in order to work effectively. In the small rural units the road operations are often very simple and only a few basic facilities are necessary. In any case, however, there appears to be no justification for highway units that are not of sufficient size to warrant:

1. The full-time employment of a highway foreman or supervisor well schooled in the techniques of highway operation and at least one permanent helper.
2. The ownership of a highway machinery unit consisting of at least one truck, a snow plow, a power grader and some minor items of equipment.

Table VI-6

PERCENT OF ROAD IMPROVEMENT IN A REPRESENTATIVE SAMPLE OF BOROUGHS AND SECOND-CLASS TOWNSHIPS UNDER 5,000 POPULATION

Percent of Blacktop or Better	*Boroughs*	*Second-Class Townships*
0	137	570
0 - 10	20	359
10 - 25	51	261
25 - 50	147	177
50 - 75	162	64
75 - 90	116	15
90 - 100	86	5
100	51	
Total	770	1,451

HIGHWAY WORK UNIT DEFINED

Because of differences in local roads, any system used in determining minimum standards for a highway work unit should be flexible. High-type roads surfaced with bituminous and concrete require more intensive highway operations than unimproved and stabilized roads and as a result fewer miles are needed to support the minimum facilities.

Since road mileage and road surface type clearly reflect the extent of necessary road operations in a highway unit, they are the most reliable factors upon which to base any judgment of highway units. Reasonable and fair standards can thus be established by determining the amount of mileage of various roadway types which would justify the use of a minimum number of men and machines. By this means a decision can be reached as to which highway units are capable of operating at a reasonable cost.

For all practical purposes, highway units with a population of 5,000 or more may be presumed to have sufficient resources and mileage for efficient operation.

This is also true of smaller units with either 10 miles of roads with bituminous or higher-type surface or 80 miles of unimproved or stabilized surface - or some combination in between.

A formula. To provide for the units with road combinations in between, it is necessary to work out a formula. One mile of bituminous or higher-type road may be taken as equivalent to eight miles of lower-type road. Under such a formula then, the high-type road mileage would be multiplied by eight and added to the unimproved and stabilized road mileage.

The formula may be expressed as follows:

$$8A + B = 80$$

Let A be the number of miles of road with bituminous or higher-type surface.

Let B be the number of unimproved roads and roads with a stabilized surface.

For example, when a unit has 10 miles of blacktop and no dirt roads the formula would be:

$$8 \times 10 + 0 = 80.$$

Likewise, when a unit has no blacktop but 80 miles of dirt road the formula would be:

$$8 \times 0 + 80 = 80.$$

When a unit has five miles of blacktop and 40 miles of dirt roads the formula would be:

$$8 \times 5 + 40 = 80.$$

The Commission believes that as a practical matter only those highway units which meet either the minimum mileage or the minimum population requirements of this formula should be considered as satisfactory highway units.

EFFECT OF FORMULA ON SECOND-CLASS TOWNSHIPS

Some 263 of the second-class townships can meet the requirements of this formula[1]. This is about 17 percent of all second-class townships. Included are 63 second-class townships with over 5,000 population and 200 with less than 5,000 population but with adequate road mileages.

Although there is an average of 30 miles of roads in the State's second-class townships, only an average of 2.93 miles[1] of these roads have a bituminous or higher-type surface. There seems to be a tendency for those townships with more than 30 miles of roads to have less than the average amount of roads with bituminous or higher-type surfaces. As a result, numerous townships with from 50 to 75 miles of roads cannot meet the formula requirements.

EFFECT OF FORMULA ON BOROUGHS

The boroughs are affected in essentially the same manner as the second-class townships. There are 160 boroughs (17 percent of the total) that can meet the requirements. Of this number 155 qualify on a population basis and only five[2] boroughs with less than 5,000 population can qualify on a mileage basis.

Although a large percentage of the borough mileage is of a bituminous or higher-type surface, 82.5 percent of the boroughs have a road mileage of 10 miles or less. Thus they cannot qualify on a mileage basis even though their total road mileage may be a bituminous or higher-type surface.

EFFECT OF FORMULA ON FIRST-CLASS TOWNSHIPS

Of the 61 first-class townships, 22 cannot meet the proposed requirements. Of this number, 16 have less than 10 miles of roads. In general, the first-class townships have a relatively high percentage of roads with bituminous or higher-type surfaces because of their tendency to be compact and densely populated.

HOW UNITS CAN QUALIFY AS "HIGHWAY WORK UNITS"

Obviously, there must be some method of combining the operations of the highway units that cannot meet these minimum requirements. Thus there is a need for forming joint Highway Work Units. A road improvement program on a scale great enough to raise all of the existing boroughs, first-class townships and second-class townships to the proposed minimum mileage standards would be impossible due to the costs that would be involved. Also many of these units could not justify such a program on a basis of their needs.

A more practical solution to the problem of organizing joint highway units lies in the adoption of voluntary operating agreements such as is provided in the School Code and is now widely used by the school districts. Using this kind of plan, the local governments could still retain their individual identities. Yet they would work together on a contractual basis, sharing all costs of highway operation and contributing part of their revenue to a common pool. All of their roads would then have one management working for the common good of all units involved.

There are many advantages to be gained from this form of organization. Costs can be reduced by employing skilled personnel on a full-time basis. Better equipment can be made available. Moreover, there is an assurance that capital improvements will not deteriorate through lack of proper attention.

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[1] Based on a representative sample of the second-class townships.

[2] Based on representative sample of the boroughs.

It should be emphasized that since these Highway Work Units would be entirely voluntary, they should help to strengthen local government as well as to provide better local roads at lower cost.

The first- and second-class townships should, in most cases, encounter little difficulty in forming joint highway work units insofar as physical characteristics are concerned. They border one another and could merely extend road operations over township boundary lines in the manner best suited to their localities. The boroughs could combine highway operations with the townships that border them in the same manner as the townships combine highway operations with one another.

The Commission believes that the State should encourage the formation of such work units. A well managed local road program is of benefit to all Pennsylvanians and an essential part of any road development plan. All highway users have an interest in seeing that Motor License Fund grants are used efficiently. In this respect, it is particularly desirable to preserve the capital improvements financed in whole or in part by State funds.

RECOMMENDATIONS

It is recommended that:

1. The legislature empower second-class townships, first-class townships and boroughs to join in voluntary Highway Work Units and to undertake whatever contractual arrangements are necessary to make these organizations effective.
2. Any State-aid funds set aside for highway construction (as proposed in Chapter VIII) be made available only to those highway organizations that can meet the proposed minimum requirements of Highway Work Units as set forth in this chapter. This will provide an incentive for the organization of economically sound highway units and protect the State's investment in new roads.
3. For all administrative purposes and for the rendering of reports, each Highway Work Unit be considered as one unit.

State-Local Relations

HOW STATE AID MAY NOW BE USED

The State Department of Highways has been given broad power to supervise the use of State grants to the cities, boroughs and townships. As defined by law, Motor License Fund moneys may be spent by these units directly or by contract but only after approval of the Department of Highways as to the most beneficial and efficient manner of making such expenditures.

Cities, boroughs and townships. State grants are intended to be used in part for construction, reconstruction, improvement and resurfacing roads. But cities, boroughs and townships having insufficient revenues may also use all such funds for the repair and maintenance of roads. Funds may be expended by these units, however, only for roads, streets and bridges not maintained by the Department of Highways. Where this work is actually performed by the political subdivisions money may be used only for labor, equipment rental, payrolls, purchase of material (including repair parts for equipment maintenance), the purchase of small tools, road drags and snow fences. Major equipment, highway debt service and purchase of right-of-way are excluded.

Counties. State aid to the counties is supplied from the Liquid Fuels Tax Fund and is subject to less strict legal control. For while the counties are required to spend their money for highway purposes, they may also make expenditures to pay for land damages and to pay for interest and amortization on highway debt.

DEGREE OF SUPERVISION

In exercising its powers of administration the Department of Highways undertakes to supervise only the building and rebuilding of highways where State grants are involved and such projects must meet Department standards.

In counties, however, only that money spent for new construction of roads and bridges or allocated to other subdivisions requires Department approval.

State approval is required of plans, estimates, specifications and bids. But the State undertakes no planning efforts of its own and limits itself to judging each project on its own merits. Thus while plans are prepared by the various units, they are always reviewed by the Department of Highways. When construction work actually gets underway, it is then checked by an engineer from the Township Section of the Department to be sure that it is satisfactory.

Except in the counties, the State could now supervise the expenditure of State money used for maintenance and it could establish standards for this type of work. As a matter of administrative policy, however, it does not attempt to do so. Nevertheless the local units have always spent and probably always will spend more State money for this type of activity than for construction.

Importance of Maintenance. Funds granted for construction are largely wasted if upkeep is neglected. The loss of money and effort devoted to road improvement could also be particularly severe in the case of Local Roads transferred from State to local ownership. Most of this mileage is now in a satisfactory condition but improper maintenance would quickly cause it to deteriorate. Actually it would not be difficult for the State to supervise maintenance on these roads or any others, as no extensive new organization is needed to institute this kind of a program. This work could be done by the township engineers of the Department of Highways.

Naturally such a policy would be a departure from present practices but it should be helpful to all the local units. The Department of Highways could make a periodic review of maintenance practices which would then be passed along for the information of the unit concerned. This review could be supplemented by the use of a rating system which would also indicate to the various units whether or not they were doing a better than average or worse than average job. The Federal Government has followed this general policy in its own program of Federal aid and it has helped to improve the highway operations of the various states.

Unless the scope of a program of this kind is limited, however, it will lead to excessive administrative expenses and an unnecessary and undesirable extension of State control over local affairs. For these reasons, the Commission believes that supervision of maintenance should be restricted to only those local roads built or improved with State money, including any transferred from State ownership. Moreover, it is important to leave initiative in the hands of local government and to encourage the development of strong local highway units. This can be done if the Department of Highways acts in an advisory capacity.

TECHNICAL ADVICE AND EQUIPMENT

The State has ample authority to give any unit whatever technical assistance it may need. The Department of Highways may be consulted by county, city, borough or township officers having control over local roads. Upon request the Department may advise such officers with regard to construction, repair, alteration and maintenance of highways and bridges. In actual practice, there has been very little demand for technical service on the part of the subdivisions, except by second-class townships. Other units having extensive problems are generally those which are staffed with their own technical force. However, the Department on its own initiative may also compile useful information relative to road building and maintenance which it can disseminate.

In order to facilitate the work of various units, the State can also rent or lease its equipment to them. Conversely, the subdivisions can lease or rent their equipment to the State and thus help pay off the capital investment. In practice, this arrangement has not always meant that more machinery has become available to all the smaller communities. The State does not attempt to maintain any equipment pool and it actually rents considerable equipment for its own account. State rentals of equipment to subdivisions in 1948 amounted to only $894 - a very minor operation.

Snow removal is essential if roads are to be kept open during the winter.

ACCOUNTING FOR STATE AID

Financial controls are exercised through:

The Department of Highway's responsibility for the distribution of money from the Motor License Fund to the cities, townships and boroughs;

The operation of a separate fund for State-aid money at the local level; and

A system of appropriate reports.

With the exception of the counties, each community now receives its payments on the basis of its eligible local road mileage. Individual county funds are rebated semi-annually by the Department of Revenue according to a formula based upon previous sales of gasoline in each county. The law requires, however, that all State-aid grants including rebates to the counties be kept in a separate fund and that no other local money be commingled with it. It is thus possible to demand that accurate records be kept of the disbursement of all State-aid money.

Moreover, all units including counties must submit a semi-annual cost report showing disposition made of money allocated to them. All units except counties must submit an annual budget of proposed expenditures of such funds which is subject to State approval. The exact detail demanded from each unit varies, but the reports do indicate the principal items of expenditure, whether for maintenance or construction, and in the case of the counties, for highway debt service.

In case any unit fails to cooperate with the Department in furnishing required information, the Department can and does withhold State-aid funds.

STATE PERSONNEL RESPONSIBLE

The financial and administrative program of State aid is handled at present by the Township Section of the Department of Highways and has as its head the Township Engineer. He is in turn represented in each of the 11 district engineering offices by a district township engineer. There are now also 25 assistant district township engineers. A force of this size is adequate to administer the present State-aid program of the Department of Highways, including supervision of construction but not maintenance expenditures from State grants.

PUBLIC VS. PRIVATE ROADS

At the present time, there is no State control over the amount of mileage which can be added to those roads eligible for State-aid subsidy. By law, roads are defined to mean those public roads and streets excluding ways, courts and alleys, used for travel by horse-drawn and motor vehicles.

As indicated previously in this Chapter, a serious problem lies in eliminating State aid for roads which do not serve any useful purpose but are still part of the public system. Since the law bars only those roads which cannot be used for travel by the public, the question is one of being certain that the mileages shown as eligible for State grants do not include roads which have actually been abandoned. For while the State has inspected local mileage from time to time, no established method exists of reviewing this situation.

CONCLUSIONS ON SUPERVISION OF STATE AID

An analysis of the financial and administrative relationship between the Department of Highways and the local units thus leads to the following conclusions:

1. The present legal basis of Department of Highways' supervision of grants to political subdivisions is inconsistent, since counties are allowed more latitude than other units.

2. Except in counties, the State has ample powers to administer State funds properly and to assure itself that such money is being spent as effectively as possible for the right purposes.

3. The administrative policy of the Department of Highways does not make full use of its legal powers, as no effort is made to control maintanance expenditures from State grants.

4. There is no regular system of assuring the ineligibility for State aid of roads no longer open to public use.

5. There is adequate provision for the exchange of technical information whenever needed and highway equipment whenever available.

RECOMMENDATIONS ON SUPERVISION OF STATE AID

The Commission therefore recommends that:

1. In addition to approving construction expenditures the Department of Highways should make regular maintenance surveys (at least once a year) of any roads or bridges which have been built or improved with State money as well as those Local Roads and bridges which may be subsequently transferred from State to local ownership. It should publish a report indicating whether or not all these roads are being properly maintained. To assist in this determination standards acceptable to the Secretary of Highways should be applied to these roads. The present law should also be revised so that counties can be included.

2. Whenever any unit fails to appoint qualified personnel to manage its roads, or whenever it fails to build or subsequently maintain Local Roads (built or improved with State money) in accordance with acceptable standards, then the Department of Highways should be required to withhold grants until such conditions have been corrected.

3. The Department of Highways should inspect all Local Roads at least once every five years to determine whether or not such roads are actually passable the year round. Those roads which are not open to the public should then become ineligible for State subsidy.

4. All the political subdivisions be required to submit uniform reports in such detail and in such a manner as may be required by the Department of Highways to establish that State grants are being spent in a proper manner and for the purposes outlined in the law. And further, that uniform limitations should apply with regard to the purposes for which money should be spent. The present restrictions on boroughs, cities, and townships should be extended to the counties and their right to spend State highway grants for debt service and land damages should be revoked.

PLANNING OF STATE HIGHWAYS

Planning of State highways in rural locations or in small communities is not often a serious problem. In these cases, where the State highway may be the only main street, widening or relocation of such a road does not usually involve expensive rights-of-way or elaborate surveys. In larger municipalities (over 5,000 population), the problem becomes more and more complex and every major change a costly undertaking. Future civic needs, heavy traffic volumes and extensive property development around large urban areas demand that all programs look far into the future if both statewide and local traffic is to be adequately served.

How plans are made. Except in cities, the Department of Highways has the right to condemn property and build its roads along lines of its own selection. This right, however, is limited by the practical consideration of economy, and by the recognized privilege of local groups to have a voice in such plans. The cities, however, have the power of approval over Department of Highways' programs and can, if they choose, block plans or force their modification.

But many State highways actually result from joint efforts on the part of the Department and other units. Counties and other units may volunteer to participate in the purchase of rights-of-way or the State may ask them to contribute. Cities have the obligation to bear such costs for the State and the State the option of participating if it chooses. In other cases, the Department may require the cities to pay for the right-of-way for parking and sidewalk areas while the State pays for "cartway." All of these efforts mean that working agreements must be reached by the parties concerned.

Local review. Local units also have an opportunity to study those proposals of the Department which might affect their own road or property problems. The chance comes in the beginning of a program when the Department begins to make studies and reach definite conclusions as to what ought to be done. During this part of the work discussion of ideas among all qualified and interested groups is essential to achieve support and avoid future misunderstandings. After formal plans have been submitted by the Department of Highways, cities have occasionally rejected prepared proposals with the result that projects have been delayed and expensive changes have been required.

In general, the Department has followed the wise policy of keeping local officials and other interested groups advised of the nature and progress of plans currently under consideration. The responsibility for this phase of public relations falls primarily on the district engineer or one of his representatives. It is his job to conduct the initial phase of any program bearing in mind the local conditions and problems. His recommendations, however, are subject to review and approval in Harrisburg.

CONCLUSIONS ON PLANNING

A review of State-local planning leads to the following conclusions:

1. State-local planning is essentially a cooperative effort and thus requires a continuing cooperation between State and local officials. Its success rests primarily on voluntary individual and group effort.

2. It implies an ability and willingness to try to foresee problems well in advance of their occurrence and to have a basis of action which will provide a solution.

RECOMMENDATIONS ON PLANNING

In order to encourage the growth of better planning and the coordination of future highway plans, the Commission recommends that:

1. The State continue and expand its policy of cooperation by working out its ideas with local officials, civic planning groups, chambers of commerce and other citizen groups interested in long-range highway planning.

2. That wherever possible the State lay out its construction program five years in advance and that local officials and other groups be kept advised of such plans as promptly as possible, so that local road planning may be coordinated with State proposals. And also that officials in all local units concerned keep up-to-date plans of future road development for their own communities which can be fitted in with the program of the Department of Highways and which can also be used for orderly development of Local Roads.

VII
HIGHWAY FINANCE

State Finance

The State financial problem is one of not only maintaining but also constantly improving approximately 41,000 miles of highway. This mileage handles all kinds of traffic and includes all kinds of roads for State highways go everywhere and serve everybody.

MOTOR LICENSE FUND

State highway finances are handled through the Motor License Fund into which are paid motor license and other fees, the proceeds of four and one-half cents of gasoline tax, Federal-aid grants and other miscellaneous money. The remaining one-half cent of the gasoline tax is paid into the Liquid Fuels Tax Fund through which it is turned over to the counties. (See section on Local Government Finance in this Chapter.)

The importance of the Motor License Fund in the overall State financial picture is indicated by the fact that it now accounts for more than one-fourth of all State revenue. Likewise, expenditures of the Department of Highways amount to more than one-fourth of all State expenditure.

Table VII-1 shows receipts of this fund for 1948-49.

Table VII-1
MOTOR LICENSE FUND
PRINCIPAL SOURCES OF REVENUE
1948-49

	Amount	*Percent of Total*
Gasoline Tax - penalties and interest	$ 68,300,773	46.7
Motor licenses and fees	50,208,608	34.3
Federal aid[a]	23,500,148	16.0
Construction and maintenance contributions	2,302,122	1.6
Fuels use tax	327,622	.2
Miscellaneous (includes gross receipts tax)	1,723,489	1.2
Total	$146,362,762	100.0

[a] Since Federal aid is on a reimbursable basis, receipts are not the same as allocations.

SOURCE: Budget Bureau.

Table VII-2

PAYMENTS FROM MOTOR LICENSE FUND

1948-49

	Amount	*Percent*
Interest and sinking fund payments for road bonds	$ 5,083,206	2.8
Pennsylvania State Police	8,000,000	4.4
Department of Revenue collections and safety	4,483,502	2.5
State employees' retirement	707,356	.4
Miscellaneous	577,230	.3
Department of Highways' operational expense	162,658,451	89.6
Total	$181,509,745	100.0

SOURCES: Department of Highways.
Budget Bureau.

Payments from the Motor License Fund for other than Department operational expense were about 10.4 percent of total expenditures in 1948-49. The legislature has given priority of expenditure from the Motor License Fund to debt service requirements on highway bonds, payments to the General Fund to defray the operating expenses of the State Highway Patrol and payments to cover expenses of the Department of Revenue acting as agent for the collection of highway-user revenues. Further appropriations must also be made from the Fund to satisfy the State contribution to the State employees' retirement program and for other miscellaneous items. After these deductions, money remaining in the Fund is then available for use by the Department of Highways.

Chart VII-1 summarizes total receipts and expenditures from the Motor License Fund in the years 1941 and 1948.

Agricultural refunds. A new and uncertain obligation stems from Act No. 558 of 1949 which provides for refund, upon application of the user, of one-half of the tax paid on fuels purchased for the operation of farm tractors or other machinery used off the highway for agricultural purposes. It is expected that approximately $250,000 will be refunded during the first year's operation of the Act.

Future refunds will probably increase as the provisions of the Act become more generally known. The $250,000 estimate is based on refund claims made by only 15,000 of the State's 177,000 farmers.

It was anticipated by the legislature that $1,500,000 might be repaid over a two-year period. If the Act were altered to match the more liberal refunds of other states, this amount could easily be reached and perhaps exceeded. Thus this legislation creates the possibility of sizeable diversion of money

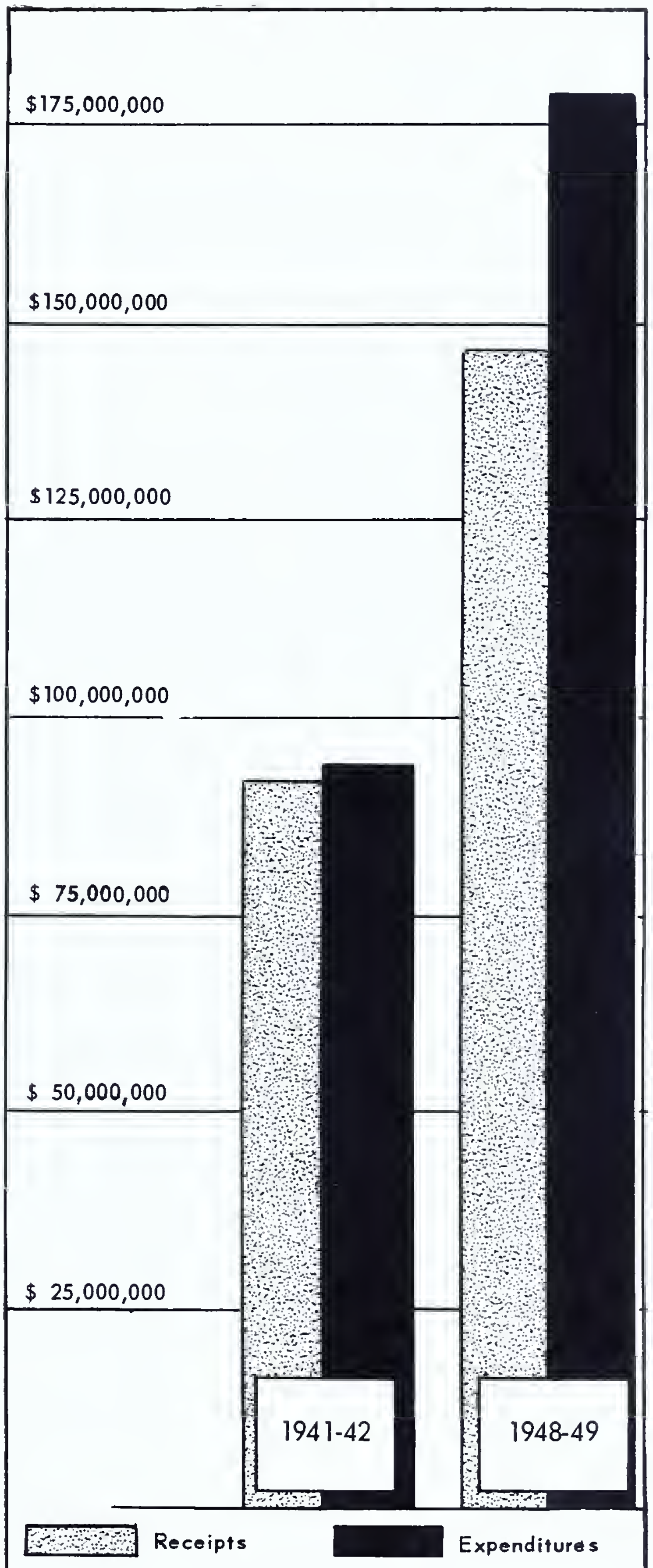


CHART VII-1

COMPARISON of RECEIPTS and EXPENDITURES from MOTOR LICENSE FUND for 1941 and 1948

which would otherwise be available for the use of the Department of Highways.

DEPARTMENT OF HIGHWAYS' EXPENDITURES

Curtailment of highway work during the war years, inflationary post war costs, and a constant increase in traffic have pushed present-day highway expenditures to high levels. The combined influence of these factors on the State road program is indicated in Table VII-3.

Maintenance and construction costs are foremost in Department outlay. The cost of administering this work contributes substantially to total expenditures. That maintenance expenditures comprised less of the total highway outlay in 1948-49 than in the earlier years indicates the emphasis placed on construction and reconstruction.

Maintenance of hard surface and concrete roads is a never-ending highway problem.

Traffic vs. expenditures. Analysis of the data in the Department of Highways shows that compared with the amounts of traffic carried, the State Rural System in rural areas shows the largest disproportion of expenditure. In 1948-49, carrying 17 percent of traffic these roads had 26 percent of the total construction and maintenance outlay spent on them. Urban extensions of the State Highway System in cities and boroughs present an opposite picture. Carrying 32 percent of total traffic in 1948-49, they received 22 percent of total construction and maintenance funds. The spending pattern of the State

Highway System in rural areas has remained quite constant with the percentage of both traffic and expenditure remaining at approximately 50 percent.

In general, the present trend toward greater expenditures on urban roads is a move in the right direction and a proper recognition on the part of the Department of Highways that this section of the State Highway System is relatively underdeveloped.

Table VII-3

DEPARTMENT OF HIGHWAYS

OPERATIONAL EXPENSES

	1941-42	*Percent of Total*	*1948-49*	*Percent of Total*	*Percent of Increase in Dollar Expenditure 1941-48*
Construction and reconstruction	$50,428,279	64.3	$111,239,854	68.4	120.6
Maintenance	16,216,523[a]	20.7	26,311,260[b]	16.2	62.3
Administration	6,384,672	8.1	12,271,922	7.5	92.2
Payments to second-class townships[c]	4,319,361[d]	5.5	5,096,954[e]	3.1	18.0
Payments to cities, boroughs and first-class townships	None		4,996,156	3.1	
Purchase of tools, land and equipment	1,144,924	1.5	2,396,306	1.5	109.3
Special work	824,297	1.0	1,368,888	.8	66.1
Stores and operation of equipment	841,779[f]	1.1[f]	1,022,889[f]	.6[f]	21.5
Total expenditures (credit applied)	$78,476,277	100.0	$162,658,451	100.0	107.3

[a] Includes $231,873 for flood control and $15,984,650 for maintenance.

[b] Includes $25,898,577 for maintenance and $412,683 for flood control.

[c] Payments to counties are made by the Department of Revenue from the Liquid Fuels Tax Fund.

[d] Includes $4,245,481 (State grants) to second-class townships plus $73,880 other payments to townships.

[e] Includes $4,997,788 (State grants) to second-class townships, plus $99,166 other payments to townships.

[f] Credits.

SOURCE: Department of Highways.

Table VII-4

STATE AID TO LOCAL SUBDIVISIONS FROM HIGHWAY-USER TAXES

1941-48[a]

	County[b]	*Second-Class Townships*	*Cities, Boroughs and First-Class Townships*	*Total*
1941	$ 8,264,187	$4,250,000		$12,514,187
1942	7,355,464	4,250,000		11,605,464
1943	5,613,437	4,250,000		9,863,437
1944	5,395,484	3,500,000		8,895,484
1945	5,874,130	3,500,000		9,374,130
1946	7,530,896	4,250,000	$4,250,000	16,030,896
1947	8,727,185	4,250,000	4,250,000	17,227,185
1948	9,525,217	5,000,000	5,000,000	19,525,217
1949	10,567,987	5,000,000	5,000,000	20,567,987

[a] All years shown are calendar years.

[b] Paid from Liquid Fuels Tax Fund.

SOURCES: Department of Highways.
Department of Revenue.

TRENDS IN STATE GRANTS

Table VII-4 and Chart VII-2 shows the trend in State aid to local units in recent years.

Second-class townships. Second-class townships have traditionally been recipients of State aid. At first, this money was spent directly by the Department of Highways for the maintenance and repair of second-class township roads. Starting with 1939, however, allocations out of the Motor License Fund were made to the individual townships by the Department of Highways and their subsequent expenditures supervised by the Department.

Counties. Whereas second-class townships had been receiving State aid for road improvement prior to the establishment of the State Highway System in 1911, aid to the counties was not instituted until 1921 when the State imposed a one-cent per gallon gasoline tax. One-half the proceeds was returned to the counties to assist them in financing road and bridge construction and maintenance, pay damage claims related to highway work and service highway debt. This policy was continued after the State took over most of the county roads in 1931.

Cities, boroughs and first-class townships. In recognition of urban needs, cities, boroughs, and first-class townships were added in 1946 to the list of those units regularly receiving State funds for streets off the State Systems. Act No. 400 of 1945 made them the recipients of appropriations derived from the deposit in the Motor License Fund of the proceeds from the one-cent gas tax formerly used for

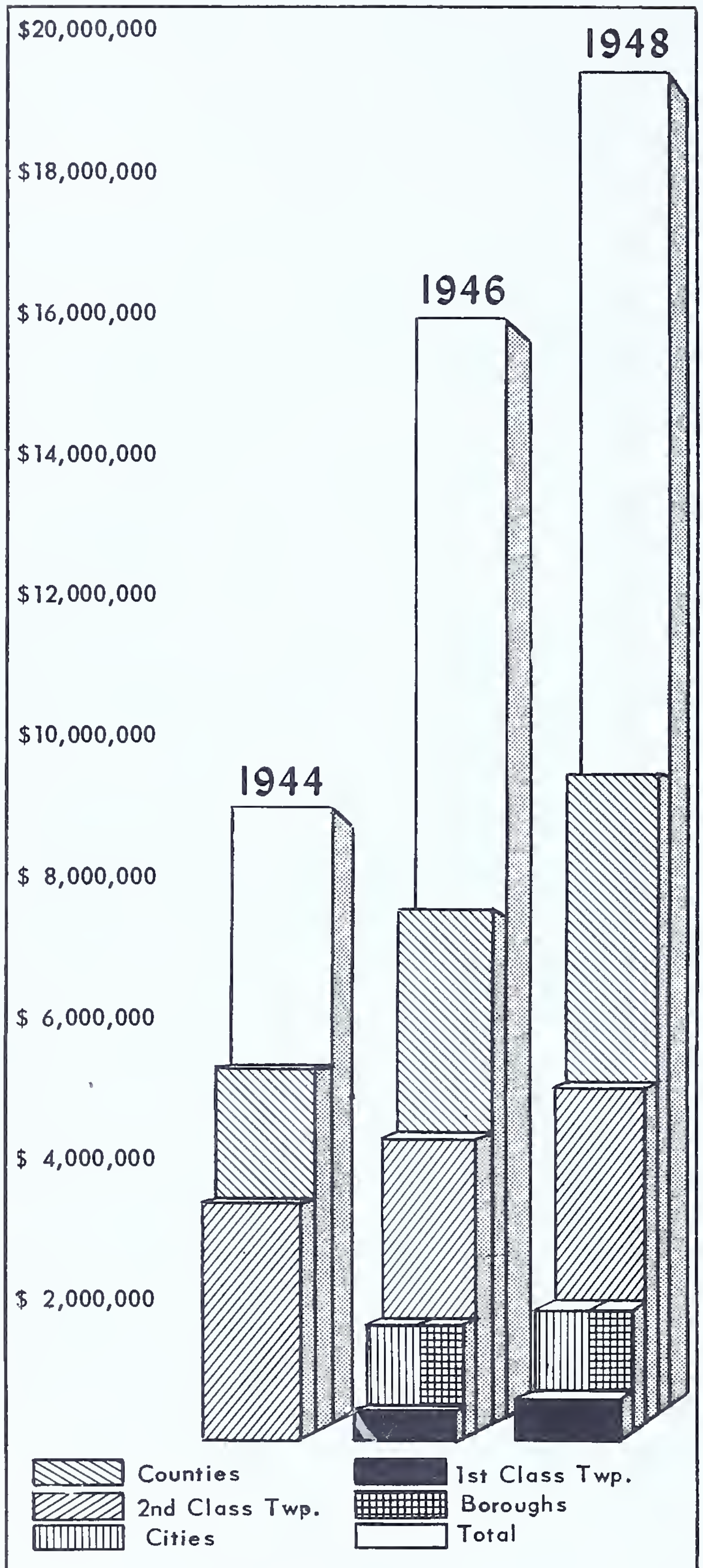


CHART VII-2

STATE AID to LOCAL SUBDIVISIONS from HIGHWAY-USER TAXES SELECTED YEARS

unemployment relief. Today the appropriation is $5,000,000 per fiscal year and is distributed among these units according to local road mileage.

The City and County of Philadelphia are coextensive in area and operate under a consolidated government. Because it is both a city and a county, Philadelphia has benefited both from the receipt of money from the Liquid Fuels Tax Fund as a county, and from an annual grant from the Motor License Fund as a city.

Conclusion. These various State grants have gradually reached a point where they now represent a major expenditure of highway-user revenues.

HIGHWAY DEBT LIMITATIONS

The Commonwealth's borrowing capacity is limited by the Constitution to one million dollars.

To meet conditions unforeseen at the time of the Constitution's acceptance, the Department of Highways was subsequently authorized by Constitutional Amendments to issue bonds amounting to $100,000,000 for highway work. These bonds were issued between the years 1919 and 1926. At the end of 1949, $63,312,000 had been paid against this debt, leaving $36,688,000 as an unpaid balance. The sinking fund cash balance available for the repayment of the outstanding highway debt was approximately $25,162,000, leaving a net debt of approximately $11,526,000 at the end of 1949. Naturally, as this money has been repaid and debt service charges reduced, more money from the Motor License Fund has become available for other highway purposes.

Any additional direct borrowing by the State to finance highway work would necessitate further amendment of the Constitution - a complicated procedure.

FEDERAL AID

Pennsylvania's share. Since 1946, Pennsylvania has been authorized by the Federal Government to spend the following amounts of money as shown in Table VII-5.

During the fiscal year 1949 no Federal money was allotted to any state. The reason for this was that economic conditions, such as shortages of men and materials, made it impossible for the various states to use the funds already authorized.

Table VII-5

FEDERAL AID IN PENNSYLVANIA

Fiscal Year July 1 - June 30	*Primary System*	*Secondary System*	*Urban Extensions*	*Total*
1946	$9,185,473	$5,270,332	$10,517,201	$24,973,006
1947	9,182,796	5,268,563	10,517,201	24,968,560
1948	9,060,867	5,198,242	10,382,365	24,641,474
1949		(No Federal Allotment)		
1950	8,156,836	4,679,791	9,344,128	24,180,755
1951	8,151,917	4,676,549	9,344,128	22,172,594

SOURCE: U.S. Bureau of Public Roads.

Eligible mileage. Federal aid is confined to the Federal-Aid Highway System (see Chapter II) and is limited in scope. As of June 30, 1949, the mileage eligible for subsidy is shown in Table VII-6.

As a practical matter, the Federal definition of roads eligible for Federal aid in Pennsylvania results in a selection of mileage which lies almost entirely on the State Systems. But since the Department of Highways, in 1949, was responsible for a total of 40,940 miles of roads, Federal aid could still only touch upon a limited number of its highways.

Administration. The Federal Government has a definite and complicated procedure for handling Federal aid. It requires that plans, specifications, bids, awards, contracts and finally construction be subject to its approval or Federal money will be withheld. Only after a project is complete and the work finished is it possible to collect any money. The process is time-consuming and cumbersome.

Although the State through its ownership of roads on the Federal Systems has been practically the sole recipient of Federal aid, it has made efforts, within the limit of Federal law, to pass along a share

Table VII-6

ELIGIBLE FEDERAL-AID MILEAGE AS OF JUNE 30, 1949

Federal-Aid Primary		
Rural	6,688	
Urban Extensions	1,191	
Total		7,879
Federal-Aid Secondary		10,624
Total Federal-Aid Mileage		18,503

SOURCE: U.S. Bureau of Public Roads

to the townships. In 1946, $1,000,000 was set aside for this purpose. Out of this original grant $304,000 was finally spent. In 1948, another effort was made to spend the balance of these funds and, in 1950, $500,000 was made available. The small mileage of township roads now eligible for Federal aid has, however, severely limited their ability to take advantage of any Federal help.

Future grants. It is difficult to foresee what Federal aid may field in future years. But as can be observed from Table VII-5, the postwar record has, with the exception of 1949, resulted in Pennsylvania getting about $24,000,000 per year. Although the amount was reduced slightly in 1951, the allocation for 1952 has just been set at $23,600,000. Assuming that no drastic changes are made in the next 12 years, it would seem safe to estimate that the State will receive in these years what it has gotten in the past - namely about $24,000,000 per year.

Conclusions. The Federal definition of roads eligible for Federal aid has resulted in a selection of mileage lying almost entirely on the State Systems. Consquently, under present regulations the State is and probably will continue to be almost the sole benefactor of Federal aid.

There are several weaknesses in the Federal-aid program. The high degree of supervision required makes the arrangement somewhat burdensome. Federal road building standards are high and are designed primarily for roads carrying heavy traffic. Many miles of Pennsylvania State highways do not need such a high degree of improvement. To develop a program using Federal money and standards on all State highways would be needlessly expensive. Fewer miles of highway could be built or reconstructed with available money and no commensurate advantages gained.

It should also be stressed that a great many miles of State road receive no Federal aid. Sufficient State funds must be left free of Federal supervision if all State highway mileage is to receive fair treatment.

Increased Federal aid could result in the complete domination of the Department of Highways by the U.S. Bureau of Public Roads. Matching of present Federal grants means that about $48,000,000 (twice $24,000,000) of highway construction is subject to Federal control - $48,000,000 is approximately 44 percent of all money spent for construction in 1949. Unless the terms are changed, larger grants mean an increasing Federal control over the Department of Highways and less freedom of action by the State.

On the other hand, a limited amount of Federal aid is probably a sound policy. It provides an outside review of the work of the Department and benefits undoubtedly derive from the interchange of technical information, creation of national defense highways and, in a lesser degree, from the compilations of statistical data.

However, for the reasons given above, it is not believed that additional Federal aid would benefit Pennsylvania in financing and administering its highway program. While a limited amount of such assistance is valuable, an increase in Federal aid could too easily result in additional taxation and a further intrustion of Federal control in State affairs.

State Authorities

TURNPIKE COMMISSION

The Pennsylvania Turnpike Commission was established by the 1937 legislature. Except for an original grant by the Commonwealth for "engineering purposes only," the State assumes no financial responsibility for the Commission's activities. The Commission is required to issue bonds to finance all construction and to charge tolls and other fees for use of its facilities to cover all operating, maintenance, administrative, debt service and bond amortization costs.

When it is free of indebtedness, the Commission must turn over to the Commonwealth, free of charge, the Turnpike System it has built. The Commonwealth also requires that all construction projects, land purchases and property condemnation be first approved by the Department of Highways.

Financial operations. Through a PWA grant of $29,250,000 and purchase of an entire bond issue of $40,800,000 by the RFC, the Federal Government financed the original Turnpike.

At present, there are $47,000,000 in bonds outstanding as a result of the construction of the original Turnpike. By refunding the initial issue in 1946 and again in 1948, the interest rate has been reduced from three and three-quarters percent to two and one-quarter percent.

Toll charges, varying from about one cent per mile for passenger vehicles to slightly more than six cents per mile for heavy trucks, are the main source of Turnpike income. Gasoline, oil and restaurant concessions yield additional revenue – amounting to $367,000 during the 1949-50 fiscal year.

With the exception of the period of travel restrictions during World War II the Turnpike has made money, as shown in Table VII-7. Excluding the war years when vehicle travel was drastically restricted, the average operating balance would retire all indebtedness on the first section in 13 years.

Analysis of Turnpike operations indicates that had the Turnpike been undertaken without any PWA grant, and entirely through the sale of bonds, its earnings would be sufficient to cover all debt service costs.

Present financial advantages. Low construction costs of the late 1930's aided the Turnpike, as did the PWA grant. A construction cost index for Pennsylvania highways shows that when the original Turnpike was built, costs were only 52 percent of the average for 1949.

In addition, the Commission was and is aided financially by the exemption of its bond interest from Federal and State income taxes - permitting low interest rates.

Traffic. From its opening in 1941 to May 31, 1949, nearly 18 million vehicles traveled over the Turnpike. Of this number, 29 percent traveled its full length.

Table VII-7

TURNPIKE FINANCIAL OPERATION

Fiscal Year Ending May 31	*Total Income*	*Total Net Expenses (Operation, Maint., Admin.)*	*Interest Charges on Bonds*	*Operating Profit*
1942	$3,090,852	$ 838,716	$1,020,000	$1,232,136
1943	1,969,349	814,403	1,530,000	(375,054)[a]
1944	1,785,426	780,514	1,553,594	(548,682)[a]
1945	1,905,622	744,935	1,586,250	(425,563)[a]
1946	2,905,462	779,368	1,586,250	539,844
1947	4,120,020	999,061	1,249,931	1,871,028
1948	5,182,179	1,185,939	1,144,409	2,851,831
1949	6,325,404	1,334,122	834,250	4,157,032
1950	7,549,880	1,314,816	1,057,500	5,177,564

[a] Deficit.

SOURCE: Pennsylvania Turnpike Commission.

By 1948, at least one-half of the toll income came from out-of-state vehicles destined for points outside Pennsylvania. Considering 1948 a representative year, at least one-half of the cost of the Turnpike is being paid for by out-of-state drivers.

Truck traffic, which amounted to one-fifth of the total traffic between 1941 and 1948 supplied well over one-half (57 percent) of the revenue. During the fiscal year 1949-50, trucks alone (excluding classes R and S) paid 81 percent more in tolls than did passenger cars. They, of course, realize the greatest savings by using the Turnpike.

Extensions. The Commission has been authorized to build four extensions providing it submits reasonable evidence that such extensions can finance themselves and providing the Department of Highways approves the projects. Two extensions are now under construction - the Eastern and Western Extensions of the Turnpike.

Enabling legislation for two additional extensions - the Erie and Scranton Extensions - has been signed by the Governor.

The original Turnpike and the Eastern and Western Extensions now being built are a consolidated operation. All revenues will support the bonds of the total "Turnpike System." Anticipated revenues, as calculated by the Turnpike Commission's consulting engineers, are sufficient to retire all bonds of the entire Turnpike System by 1965, including the two new extensions.

HOW WIDELY CAN TOLLS BE USED FOR ROADS?

The experience with the Turnpike and its extensions indicates that roads of this type are expensive to operate and expensive to build. As a result traffic volumes must be relatively high to support this type of road.

While conditions vary, it is estimated that a four-lane highway similar to the Turnpike in a rural area would now cost about $800,000 per mile. The same road in an urban area would require anywhere from three to six times as much. Debt service on $800,000, with interest charges at two and one-quarter percent and bond retirement in 30 years, is approximately $35,700 per mile per year. Management costs including maintenance, pavement replacement and toll booth operations would be about $10,000 per mile per year. Total annual costs are thus estimated at $45,700 per mile per year which must be paid for out of toll charges on traffic using such a road.

The Pennsylvania Turnpike which carries high speed traffic over and through the Allegheny Mountains is one of the nation's outstanding examples of successful toll financing.

Assuming that the toll revenues average yield is $.017 per vehicle mile (the same as the Turnpike), it would then take at least an average of 2,700,000 vehicles per year or 7,400 vehicles per day for each mile of road to break even. These figures do not contain any safety factor, such as is customarily required by investment bankers, which could increase the minimum income and traffic volume needed by as much as 50 percent.

Commission engineering studies show that there are about 1,940 miles of road in Pennsylvania on the Trunkline and Intercommunity Systems which are now carrying more than 5,000 vehicles per day. This amount represents 10.6 percent of the total mileage on these two Systems and about 1.9 percent of all the roads in the State. However, not all highways with this traffic volume were in rural areas where construction costs could be kept to a minimum. Urban roads which are much more expensive to build total about 400 miles or 21 percent of this eligible mileage.

Nor should it be assumed that every stretch of highway with enough vehicle travel can be readily or easily converted to toll financing. Aside from variations in cost, toll roads must also be able to demonstrate decided advantages over competing facilities which are furnished free of charge by the State, for highway users should always have a choice between a toll road and a free road—unless the State purposely wishes to create toll roads as monopolies.

CONCLUSIONS

1. Although the Turnpike has been a very successful operation, its record indicates that toll roads can play only a limited part in financing the improvement or construction of Pennsylvania highways.

2. The Turnpike operations do not place any financial burden on the taxpayers as a whole, since tolls pay for all costs of operation and for retirement of bond issues. The records show that the original section (Carlisle-Pittsburgh) of the Turnpike is self-sustaining.

3. Pronounced operational savings through use of the Turnpike, particularly by trucks, and heavy overall travel have both helped to sustain revenues.

4. By consolidating its operations, the Turnpike Commission has used the financial success of the first section of road (Carlisle-Pittsburgh) as a means for building the two extensions to King of Prussia and to the Ohio State Line. This will result in extending the period of toll collection on the original section.

5. Financing other road mileage by using this method has limited application because of high construction costs, the need for large traffic volumes and the competition of nearby free roads.

DELAWARE RIVER BRIDGE COMMISSIONS

The Delaware River Joint Commission and the Delaware River Joint Toll Bridge Commission are instrumentalities of State which conduct joint operations with the State of New Jersey. These organizations have powers of eminent domain, contract, bond issuance and property ownership, as well as the lesser powers of a public corporation. Neither can pledge the credit of the State or local governments.

These two Commissions appear to have adequate powers to provide for any future construction of of transportation facilities on and over the Delaware River, but that is the extent of their responsibilities.

The Easton—Phillipsburg and Philadelphia—Camden toll bridges which they manage are more than self-sustaining with collections exceeding present operating costs and debt service requirements. This kind of result is generally true of well planned toll bridges since usually the travel advantages offered far outweigh the charges involved.

RECOMMENDATIONS ON TOLL ROADS AND BRIDGES

It is obvious that toll financing can be applied to both roads and bridges with considerable assurance of success and without the use of public money. While there are many practical limits to the application of this idea, it still could be extensively employed on heavily traveled highways.

Nevertheless, use of tolls to finance highway projects is a subject of considerable controversy. Strong arguments can be proposed on both sides of the question, but the most compelling reason for toll facilities is the realization that they generally do not require additional tax revenues either for their construction or for their maintenance. However, the fact is that free roads and bridges have been the policy of this State for many years, and that the imposition of tolls infringes upon this traditional and fundamental public policy. For the latter reason, the Highway Planning Commission does not believe that toll facilities should become an integral part of highway finance nor that they should become standard highway practice in all places where they may be feasible.

It is recommended that:

1. All State toll projects and extensions of State toll projects continue to be subject to legislative approval.

2. Only when current highway revenues are inadequate and the need for a large project is critical should the State consider toll financing, either in whole or in part, as a method of expediting important highway improvements.

3. As a general policy, a precise limitation should be placed upon every toll project so that the revenue from one project cannot be used to finance other projects, thus extending indefinitely the period of toll charges. Exceptions to this rule should have strong public support and sound financial reasoning.

4. In no instance should construction of a toll road deprive the traveling public of use of suitable free roads.

STATE HIGHWAY AND BRIDGE AUTHORITY

Organization. This Authority was created by Act No. 128 of the General Assembly, April 18, 1949, in place of an additional one-cent liquid fuels tax. Urgently needed State highway construction made necessary either an additional two-cent liquid fuels tax or an additional one-cent liquid fuels tax plus another substantial source of construction funds. The General Assembly chose the latter course and created the State Highway and Bridge Authority with the power to provide funds through borrowing.

Its physical facilities are practically nil. For the most part, it makes use of the already existing facilities of the Department of Highways and the General State Authority. The staff consists of a small group of engineering and financial experts. This arrangement results in a minimum of administrative overhead.

Purposes and powers. The Authority is empowered to contract a limited amount of indebtedness in order to construct, reconstruct, improve, equip, furnish, maintain and operate State highways, bridges, viaducts, toll bridges, tunnels and traffic circles on State highways. All construction is subject to the approval of the Department of Highways.

It has the power of eminent domain and may acquire, under agreement with the Department of Highways and with the approval of the Governor, State highways, bridges and easements or rights-of-way. It may lease from the Department, at a reasonable rental, any property (real, personal or mixed) or any interest therein, now owned or hereafter acquired, by the Commonwealth for a term not exceeding 99 years.

With the approval of the Governor, it may lease or sell its projects to the Commonwealth. However, if the Authority finds a project too costly for it to finance, it can drop the project. Further, if it finds a project to be too costly after construction has been started, the Commonwealth may be obligated to assume responsibility for the project and reimburse the Authority for all money it has spent on the project.

Finances. The State Highway and Bridge Authority may issue a maximum of $40 million in bonds. They must mature within 30 years from date of issue and are secured on credit of the Authority and the pledge of the rentals derived from the projects. The bonds are exempt from Federal income tax and State taxation (except inheritance and estate tax). But the Commonwealth assumes absolutely no responsibility for these bonds.

At present there are $15 million in bonds outstanding at an interest rate of one and one-quarter percent with a yearly premium of one-fourth of one percent up to a maximum of two percent for bonds called prior to maturity. The balance of the bonds will be issued as necessary.

Bondholders have the right to enforce the performance of duties in the event the Authority defaults in its financial obligations or jeopardizes the security of the bonds but they have no right to sell any of the projects.

Revenues are derived from the power to fix, alter, charge and collect rates, rentals and other charges for use of the projects. Under present arrangements, rental contracts are made with the Commonwealth prior to the construction of any of the projects. Rentals must be sufficient to defray all preliminary costs, construction costs and operating costs of the Authority. Rental contracts, however, can be adjusted after a project is completed if costs are different from previous estimates.

The Commonwealth is authorized to use current revenues, including "so much of the money in the Motor License Fund as may be necessary from time to time to carry out the provisions" of the Act, to pay the rentals on the Authority's projects. This authorization is limited neither in duration nor amount and thus the legislature is not required to renew it periodically. These financial arrangements are primarily responsible for the low rate of interest on the present $15 million bonded debt.

The Commonwealth receives Federal aid for the Authority's projects on the Federal-Aid System. This aid exceeds $14 million on the projects adopted by the Authority.

Twenty-two projects have been authorized. These include the construction of two bridges and the construction or reconstruction of six highways or portions thereof amounting to $39,223,710. These projects are to be maintained by the Commonwealth but the Authority must first approve any alterations and improvements.

Motor License Fund rentals. The effect of renting the Authority's projects with money from the Motor License Fund is, of course, important in the highway financial picture. Assuming an interest rate of one and one-quarter percent on the $40,000,000 of bonds for the 30-year maximum life of the bonds, the yearly interest and amortization charge would be $1,583,000. However, as the $15,000,000 of serial bonds now issued are dated, the annual rental charge against the Motor License Fund will be approximately $2,000,000.

Conclusions and recommendations. This Commission agrees with the generally accepted theory that, except under very unusual circumstances, highway programs should be kept on a pay-as-you-go basis. Thus, although the State Highway and Bridge Authority represents an effective means of financing State highway work, it also has the disadvantages which come from borrowing money to build roads and bridges. Moreover, subsequent discussion will demonstrate that sufficient revenue is available to the State for financing its part of the 12-year program. There should be no occasion, therefore, to make any additional use of the State Highway and Bridge Authority.

The Commission thus recommends that no further effort be made to expand the scope of this Authority and that its powers and responsibilities be limited to the size of its present operations.

Local Government Finance

A study of how highways are financed by the political subdivisions brings to light problems not found on the State level. With over 2,600 local governmental units involved, individual highway operations reflect a wide range of local needs and efforts.

LOCAL ROADS TODAY

There are no identifying population characteristics for the various classes of local governments. For example, there are four counties, four cities, 107 boroughs, 18 first-class townships and 55 second-class townships which have between 5,000 and 10,000 people. On the other hand, there is no city with a population under 5,000 while five boroughs and 10 second-class townships have less than 100 persons.

Population variations are also a rough measure of the fluctuations in local travel since, in general, population represents vehicle ownership and usage. Thus traffic conditions have no political bounds.

The variation in mileage of local roads illustrates the differences and similarities in highway responsibility. In the group which has local road mileage of from 10 to 25 miles there is one county,

Table VII-8

VARIATIONS IN ROAD MILEAGE AMONG POLITICAL SUBDIVISIONS

1948

Mileage	*County*	*Cities*	*Boroughs*	*First-Class Townships*	*Second-Class Townships*	*Total Number of Units*
None	54		20			74
Less than 5 miles	7		557	8	55	627
5 - 10 miles			185	8	119	312
10 - 25 miles	1	11	157	18	451	638
25 - 50 miles	1	17	20	19	666	723
50 - 100 miles	2	12	1	4	221	240
100 - 150 miles		4		2	3	9
150 - 250 miles		2		1		3
250 - 500 miles		1				1
500 - 1,000 miles	1	1				2
Over 1,000 miles		1				1
Total	66[a]	49	940	60	1,515	2,630

[a] Philadelphia included with cities.

SOURCE: Department of Highways.

11 cities, 157 boroughs, 18 first-class townships and 451 second-class townships. On the other hand, no city has less than 10 miles of such roads under its jurisdiction and one city, Philadelphia, has over 1,000 miles.

Generally speaking, the physical nature of the highway problem tends to vary with population and local road mileage. Cities, first-class townships and the larger boroughs have large populations and relatively short highway systems whereas the reverse is usually true for the second-class townships. Thus concentrated population in the bigger communities leads to intense use of the streets. On the other hand, the smaller rural units do not need expensive or elaborate highways to accommodate the lighter traffic on their systems.

The similarity of local road mileages and populations among the different classes of government also indicates that many of them share common highway problems. The small borough very often closely resembles the small second-class township in its needs, while the big borough is very similar to the city. Also, the larger second-class townships usually have more in common with the first-class townships and the small cities than they do with other units in their own group. Thus it is evident that the present governmental classifications are not an entirely accurate measure of the road and bridge problems of the political subdivisions, and that there is no definite relationship between the type of local government and local highway problems.

PLACE OF HIGHWAYS IN THE BUDGET

The relative importance of highway expenditures within the local units is shown in Chart VII-3.

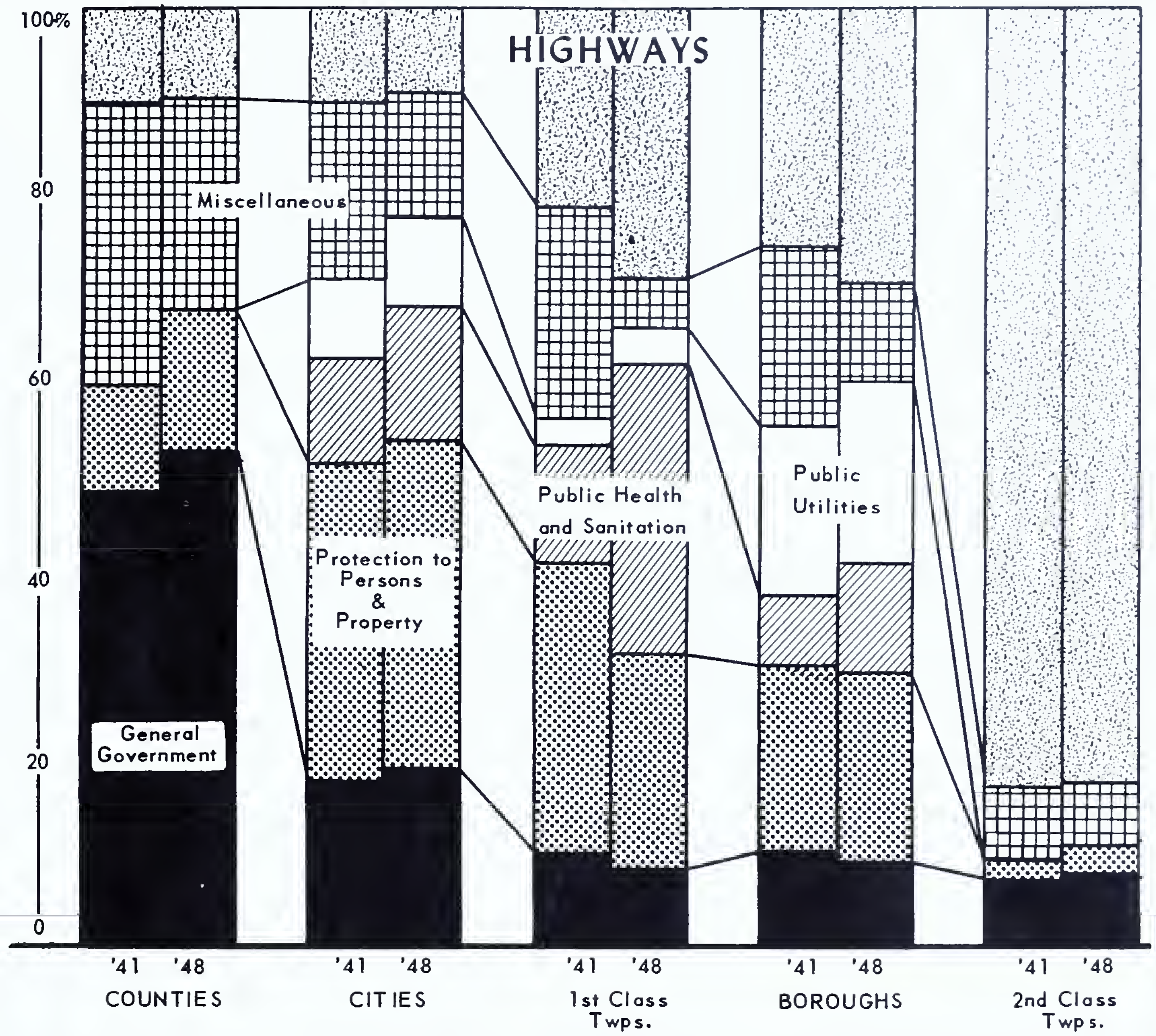


CHART VII-3
RELATIONSHIP of MAJOR FUNCTIONS of GOVERNMENT
1941 and 1948

In general, the importance declines as population grows but in all cases highway work is a major function. For although other governmental duties attain greater significance as the size of the unit rises, highway work is always one of the top responsibilities. Chart VII-3 also indicates that there is a consistent pattern of governmental expenditure because, even though local expenditures increased 55 percent between 1941 and 1948, the proportion of money spent on highways by the various groups remained surprisingly constant.

Spending habits of the subdivisions also clearly point out that at any given level of expenditures, there is a limit on the portion available for highway work. Contributions to highway programs are usually limited by the general size of the overall governmental budget and it is unwise to ask or to expect local units to use more funds for highway work, unless a further assumption is made that other types of expenditures are to be increased as well.

REVENUES

Real estate taxes are the primary source of local revenue. (See Table VII-9.)

Real estate taxes constitute about one-half of all income. Their importance declined between 1941 and 1948 and the passage of Act No. 481 promises to

Table VII-9

PRINCIPAL SOURCES OF REVENUE

1948

Source of Revenue	*Counties*	*Cities*	*First-Class Townships*	*Boroughs*	*Second-Class Townships*
Real estate	61.8	49.2	61.9	46.6	50.9
Occupation	.8	.3	.6	1.6	
State highway aid	13.4	11.1	5.9	5.0	29.0
Public utility enterprises		15.3[a]			
County highway aid		.9		1.1	6.3
Personal property	12.2				
Miscellaneous	11.8	23.2	31.6	45.7	13.8
Total	100.0	100.0	100.0	100.0	100.0

[a] Public utility enterprises are disproportionately high in 1948 because Allentown received $2,971,487 from the City Water Authority for construction and extension purposes.

SOURCES: State and Local Financial Reports, Department of Internal Affairs.

further reduce its significance. Nevertheless, it will in all probability continue to be a major item of income in future years.

State highway grants, however, have gradually become an important secondary source of revenue for all the local governments. They represented 29 percent of all income of second-class townships in 1948. This contribution on the part of the State is now an essential part of local finance, and has been of considerable assistance in maintaining highway funds at their present level. On the other hand, county aid to other units has been unimportant except for the second-class townships.

All local government receipts increased between 1941 and 1948 from $249,955,600 to $326,398,900, an increase of 31 percent. (See Chart VII-4.) In view of the dollar inflation during this period, the rise in the income of these units probably represents the minimum effort needed to offset increasing costs.

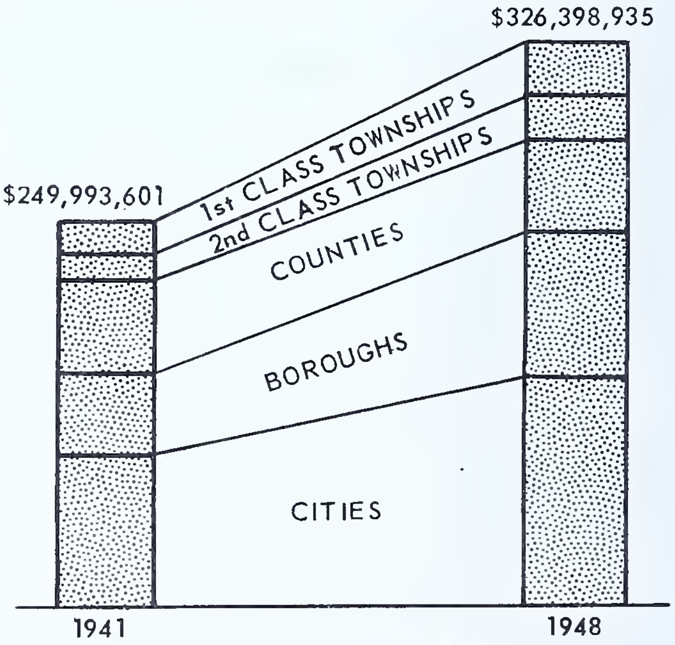


CHART VII-4
CHANGES in
TOTAL REVENUE RECEIPTS
1941 and 1948

Fortunately, the local governments still appear to have adequate resources. Assessed valuations average less than 50 percent of the market values established by the State Tax Equalization Board. This indicates greater potential revenue than is presently available through real estate taxation.

The additional revenue made possible under Act No. 481 is, for the most part, untouched although some of the more populous units are taking advantage of its provisions.

Summary. The local units of government seem to be reasonably well situated financially in spite of the inflation between 1941 and 1948. Current highway expenses and the amounts being set aside for highways do not appear to be either excessive or burdensome. However, State aid now plays an important part in financing local roads for all units of government and has become a vital part of local highway income.

DECREASING DEBT

The bonded indebtedness of the local governments was considerably lower in 1948 than in 1941—another indication of the good condition of local finances. (See Table VII-10.)

It seems evident, therefore, that the present level of local government borrowing is quite reasonable and that many units could, if absolutely necessary, assume some additional debt to finance major highway projects too expensive to be paid for out of current revenue.

HIGHWAY EXPENDITURES

Maintenance costs are generally more than half of all local highway costs. (See Table VII-11.) Of necessity they are the first and most essential charges against funds available for highway purposes.

Construction is the other major item of highway expenditure. It is more variable than maintenance, since it can be readily increased or decreased as local conditions change. Major equipment is a small percentage of expenditures.

The importance of maintenance costs as part of local highway expenditures emphasizes the need for recognizing the many local variations in these costs. As shown in Table VII-12, the maintenance expenditures per mile of road cover a wide range.

The political subdivisions' overlap of per-mile maintenance costs clearly illustrates the similarity of many local highway conditions and, consequently, the overlapping of local highway needs. For example, in the bracket of those spending $750 to $1,000 per mile in 1948, there were four cities, six first-class townships, 167 boroughs and six second-class townships.

Table VII-10

CHANGES IN NET BONDED DEBT

	1941	*1948*	*Percent Change*
Cities	$477,268,175	$439,122,001	- 8.0
First-class townships	12,727,211	11,799,760	- 7.3
Boroughs	4,070,722	2,912,329	- 28.5
Second-class townships	3,924,396	2,375,730	- 39.5
Counties[a]	150,935,695	111,184,750	- 26.3

[a]Excludes Philadelphia.

SOURCE: State and Local Financial Reports, Department of Internal Affairs.

Table VII-11

MAJOR HIGHWAY EXPENDITURES

1948

	Counties	*Cities*	*First-Class Township*	*Boroughs*	*Second-Class Townships*
Maintenance [a]	71.1	61.6	63.2	54.7	75.1
Construction	27.4	15.9	28.0	21.5	17.7
Resurfacing		2,2	1.3		7.2
Operation of asphalt plant		6.4			
Major equipment	.6	2.9	1.6		
Other expenses	.9	11.0	5.9	23.8	
Total	100.0	100.0	100.0	100.0	100.0

[a] Includes snow removal.

SOURCE: State and Local Financial Reports, Department of Internal Affairs.

Table VII-12

VARIATIONS IN PER MILE MAINTENANCE

1948

	Cities	*First-Class Townships*	*Boroughs*	*Second-Class Townships*	*Total Number of Units*
No expenditure			28	10	38
Less than $200 per mile				802	802
$200 - $300 per mile		1	90	376	467
$300 - $500 per mile		9	166	216	391
$500 - $750 per mile	1	17	142	80	240
$750 - $1,000 per mile	4	6	167	6	183
$1,000 - $1,500 per mile	15	21	166	20	222
$1,500 - $2,000 per mile	13	3	111	5	132
$2,000 - $2,500 per mile	9	3	40		52
$2,500 - $3,500 per mile	6		15		21
Over $3,500 per mile	1		15		16
Total	49	60	940	1,515	2,564

IMPORTANCE OF STATE GRANTS

The importance of State grants for highways has previously been shown (Table VII-9). It is one of the principal sources of local government revenue. As illustrated in Table VII-13, however, there are significant variations in its importance to various units.

It is evident from the preceding table that in 1948, 176 units of government (40 boroughs, 32 counties and 104 second-class townships) financed all of their highway program out of State aid and contributed nothing from local revenue. On the other hand, another 57 units spent none of their State grant. For nearly one-fifth of these local governments (19 percent) State aid amounted to 75 percent or more of total highway expenditures. From 1941 to 1949, an average of 147 second-class townships levied no real estate tax and hence contributed nothing toward their highway programs.

It is not logical to expect some units to furnish 75 percent of their total highway expenditures from local taxes while others contribute nothing and a few appear to need no help at all.

Cities, boroughs and townships. A partial explanation for these differences in State-aid grants can be found in the present program of State grants. This money is now being distributed according to local road mileages. Second-class townships receive $110 per mile and cities, boroughs and first-class townships receive $394 per mile.

In Table VII-12, however, it has been shown that maintenance costs for various units are not constant. Assuming that maintenance costs are a guide to local highway needs, it is plain that these mileage grants are more beneficial to some units than to others. An excellent example of this situation is the case of the small boroughs and second-class townships. Many of these governments have similar highway problems but the boroughs receive a much larger mileage allocation than do the townships. It is thus possible for some local units to service all their requirements with State funds while others are forced to draw substantially on local revenues.

The Commission also recognizes that the State's share of total highway expenditures would not be the same in all units of local government. As the distribution of wealth and population per mile of road varies with each unit, so do revenue resources and highway income. For example, many rural communities have more roads and a heavier road burden in relation to their wealth than do some urban centers.

Table VII-13

STATE AID AS A PERCENT OF TOTAL HIGHWAY EXPENDITURES
1948

Percentage	*Counties*	*Cities*	*First-Class Townships*	*Boroughs*	*Second-Class Townships*	*Total Number of Units*
0	10	2	10	35		57
0 - 10		21	6	54	35	116
10 - 25	2	24	17	398	276	717
25 - 50	2	2	23	307	456	790
50 - 75	4		4	66	368	442
75 - 90	7			25	187	219
90 - 100	9			15	89	113
100 and over	32			40	104	176
Total	66	49	60	940	1,515	2,630

Therefore, their share of the total costs of highway operation should not be as large as that of the cities. Thus some variations in State aid as a percent of total highway expenditures will always exist but the differences created under the present system of grants are too extreme to be upheld even on this basis.

Counties. The present county grant also bears no close relation to highway needs. Furthermore, it serves the additional purpose of assisting the counties in their repayment of highway debt.

Counties now receive one-half cent of the gasoline tax or about $10,000,000 per year for both these purposes which is divided among them by a formula based on the sale of gasoline in individual counties. This county grant could thus be considered as a subsidy related to county-wide vehicle travel. However, in this situation the counties are unique, for while they are responsible for numerous bridges scattered throughout their territory, they have little road mileage of their own. Travel, and the consequent sale of gasoline, are only a very limited indication of bridge requirements and hence of most county highway needs. Gradual deterioration, regardless of use, and size are certainly equally important factors to be dealt with in the final determination of bridge costs. Furthermore, as will be discussed in the section dealing with the county 12-year financial program (see Chapter VIII) the one-half cent grant to the counties bears no direct relation to their burden of highway debt. Those counties with few bridges, no roads and little debt in relation to the sale of gasoline have fared relatively well.

SPENDING OF STATE GRANTS

As shown in Chart VII-5, functional expenditures of State grants also show little consistency between political classifications. The percentage of State aid expended for construction in counties, cities and first-class townships far exceeds that in second-class townships and boroughs.

State grants spent for road and bridge improvements within these groups show an even greater variation. (See Table VII-14.)

Slightly over one-half of the subdivisions spent none of their State funds in 1948 for construction and in the case of these units, therefore, State money did not provide for road improvement. In the group which thus spent all of its money on maintenance there were four counties, 26 cities, 32 first-class townships, 562 boroughs and 769 second-class townships. This practice was, therefore, not confined to any particular type of governmental organization. Obviously, if State funds are to help provide a continuous program of highway building, a specific minimum requirement on road improvements will have to be made.

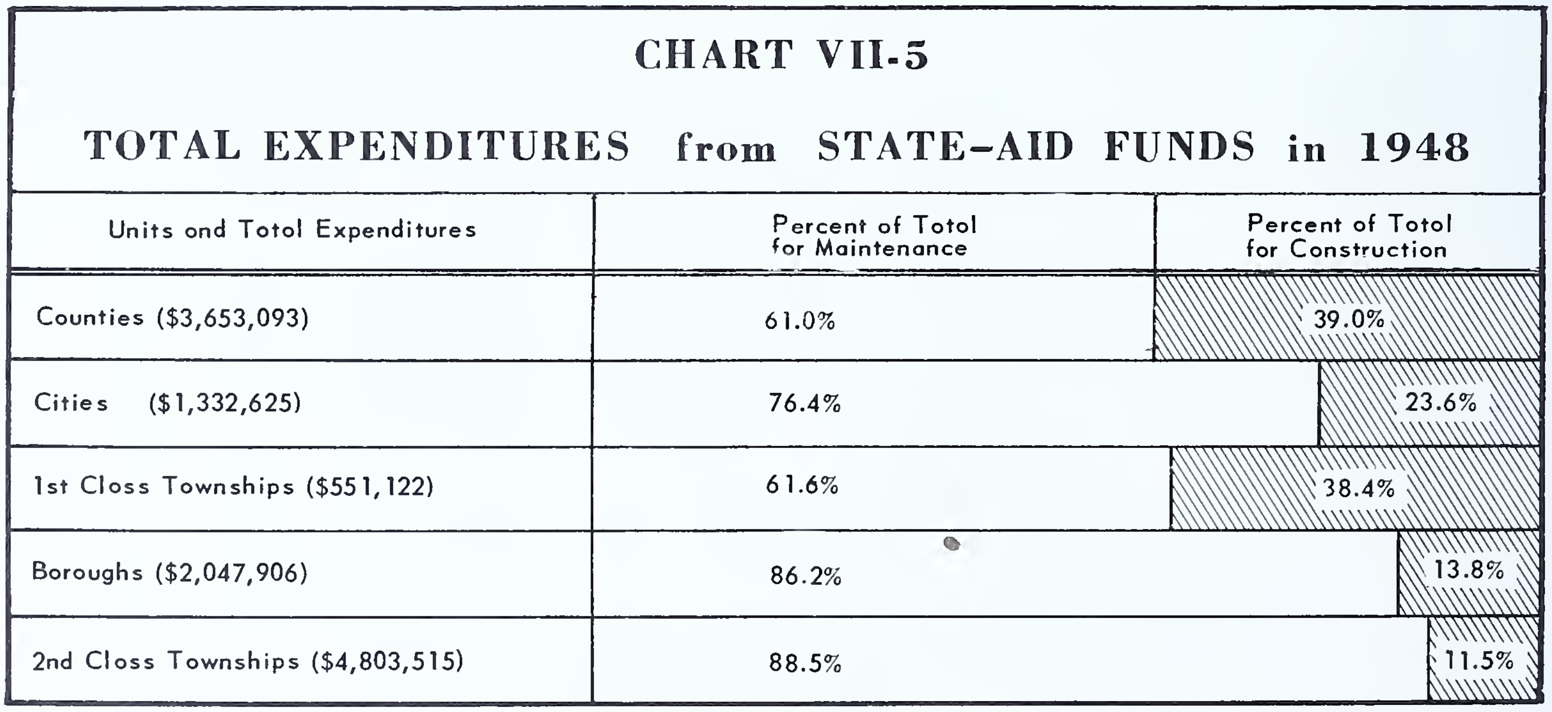


CHART VII-5

TOTAL EXPENDITURES from STATE–AID FUNDS in 1948

Units and Total Expenditures	Percent of Total for Maintenance	Percent of Total for Construction
Counties ($3,653,093)	61.0%	39.0%
Cities ($1,332,625)	76.4%	23.6%
1st Class Townships ($551,122)	61.6%	38.4%
Boroughs ($2,047,906)	86.2%	13.8%
2nd Class Townships ($4,803,515)	88.5%	11.5%

Table VII-14

CONSTRUCTION EXPENDITURES FROM STATE AID AS PERCENT OF TOTAL AID

1948

Percentage	*Counties*	*Cities*	*First-Class Townships*	*Boroughs*	*Second-Class Townships*	*Total Number of Units*
0	4	26	32	562	769	1,393
0 - 10	6	1	1	6	261	275
10 - 25	2	1		34	144	181
25 - 50	6	2	3	11	186	208
50 - 75	11	1		17	113	142
75 - 90	9	1		17	26	53
90 - 100	5		2		5	12
100	13	12	12	135	11	183
No expenditure	10	2	10	158		180
Total	66	46[a]	60	940	1,515	2,627

[a] Philadelphia, Reading and New Kensington not included.

SOURCE: State and Local Financial Reports, Department of Internal Affairs.

CONCLUSIONS

The multiplicity of local governmental units complicates the study of their highway operations and needs. It is difficult to generalize on a subject which in essence is highly individualistic. Certain conclusions, however, can be drawn.

1. Local units of government show wide variations in characteristics of population, local road mileage and highway expenditures. Moreover, governmental groups overlap in all these respects and, therefore, many of them have similar highway problems. Political classifications are thus a purely governmental distinction and not a clear indication of current road needs.

2. The financial condition of local units is generally good. Debt has been reduced since 1941 and assessments are low as compared to market value. The overall increase in receipts and expenditures seems modest in view of dollar inflation during the period of 1941 to 1948. If additional revenue is needed, it could be obtained through increasing assessments or through greater use of Act No. 481. Current expenditures and highway expenses are not burdensome and could be expanded in some individual cases. Debt capacity is available to finance projects which cannot be covered by current revenues or to provide for emergency needs.

3. The percentages of revenue allotted for the major local governmental functions changed very little in 1941 and 1948, and there is no reason to expect any major change in future years. Thus money now being set aside for highway work by the various groups is approximately the maximum available under present level of revenue.

4. Since less than half of all the local units spent no State-aid money for construction, it is obvious that State aid is not providing for any substantial or continuous amount of road improvement.

5. Furthermore, the present systems of State grants are inadequate in that they do not sufficiently reflect the variation in local needs. In the case of the counties, boroughs and second-class townships, the distribution pattern of grants is particularly unsound and needs to be revised.

VIII

FINANCING THE 12-YEAR PROGRAM

Financing the State Highways

SOURCES OF INCOME

As set forth in Chapter VII the principal sources of income for the Motor License Fund are liquid fuel taxes, motor vehicle and other license fees and Federal-aid grants.

Liquid fuels tax revenues. Motor vehicle travel in Pennsylvania increases each year, both because there are more cars and trucks and because of increasing use of the roads. This means a continued increase in the annual revenues derived from the liquid fuels tax.

It is estimated that between 1950 and 1962 vehicle travel in this State will increase about 34 percent. It is estimated that with a continuation of the five-cent per gallon gasoline tax and with an average per gallon mileage of 13.1 miles, the revenue from the liquid fuels tax will rise from approximately $103 million in 1950 to nearly $133 million in 1961. It is estimated that this will amount to a total return of $1,424,325,000 during the 12-year period.

Motor vehicle tax revenues. Growing population and increasing motor vehicle ownership are causing the constant growth in revenues from the motor vehicle tax. It is estimated that through 1961 the total registration will increase to 3,451,000 or 117 percent of 1949, and that there will be 31 vehicles per 100 persons compared to 26 in 1949. In addition, revenues from the motor vehicle tax will grow at a greater rate than total registrations due to the faster increase in the number of motor trucks and trailers which pay higher fees than other vehicles. The estimates show that revenues from motor licenses and fees, which amount to about $52 million in 1950, will increase to about $66 million in 1961. Total revenue from motor licenses and fees during the 12-year period would be about $716,370,000.

Federal aid. As explained in Chapter VII, Federal aid may be expected to average $24 million a year (approximately the present rate) during the next 12 years. Total yield would be $288 million.

Other revenue. Miscellaneous revenues are expected to increase alongwith the increase in vehicle travel from about $4 million in 1950 to $5,600,000 in 1961. Total miscellaneous revenues over the 12-year period are estimated at $57,908,000.

Total revenue. On the basis of the foregoing, it is estimated that total Motor License Fund revenue will increase from about $182,400,000 in 1950 to about $228,420,000 in 1961. Total yield for this 12-year period is estimated at $2,486,603,000. Chart

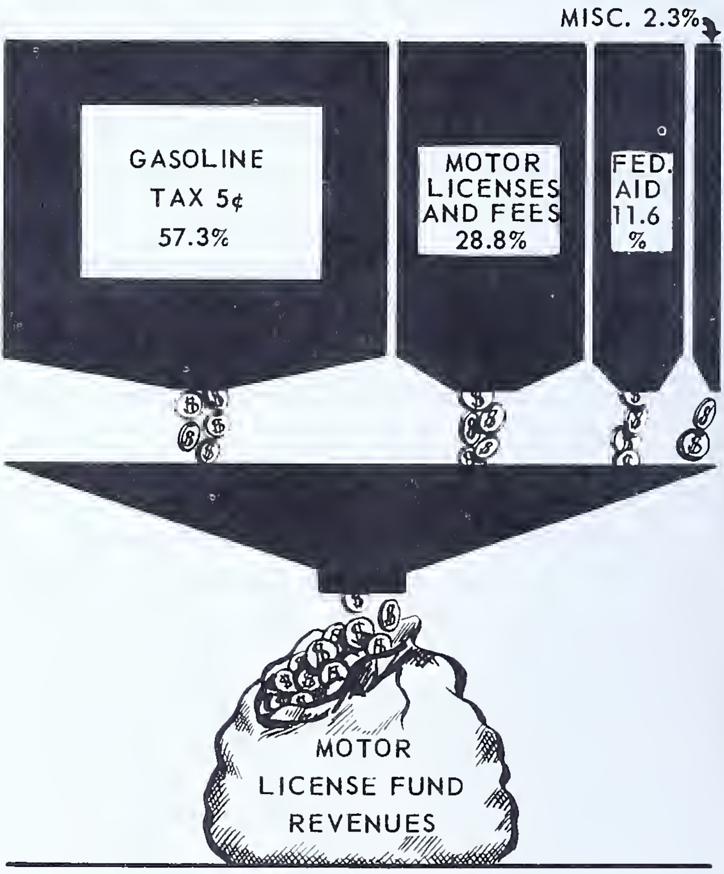


CHART VIII-1

ESTIMATED SOURCES of MOTOR LICENSE FUND REVENUES by PERCENT 1950-1962

VIII-1 shows the relative importance of the various sources of revenue. Experience thus far during 1950 indicates that this forecast of total revenues is on the conservative side.

MOTOR LICENSE FUND EXPENDITURES

The estimated expenditure schedule of Motor License Fund revenues is given in Table VIII-2 and their relative contribution is shown in Chart VIII-2. Increases in expenditures are nominal in all functions except for rentals, State Police and Department of Highways operations. Within the Department changes in State-aid procedures and a larger construction program are the principal differences.

State Police. The activities of the State Police have been expanded. This change has required increased appropriations for this work and a larger expenditure from the Motor License Fund.

Highway debt service and rentals. The outstanding bonded indebtedness of the Motor License Fund will be retired by 1955 with the total principal and interest charges against the Fund calculated at about $12,500,000. However, State payments of rentals to cover the indebtedness of the State Highway and Bridge Authority will increase these charges by $20,000,000 for the 12-year period of the program, assuming an annual payment of $2,000,000 for principal and interest charges of the State Highway and Bridge Authority bonds for the years 1952 through 1961. In a later part of this Chapter, a method is outlined for the repayment of county highway debt through rental payments to the State Highway and Bridge Authority. This proposed change involving a total of $31,017,000 has also been incorporated in this schedule of charges.

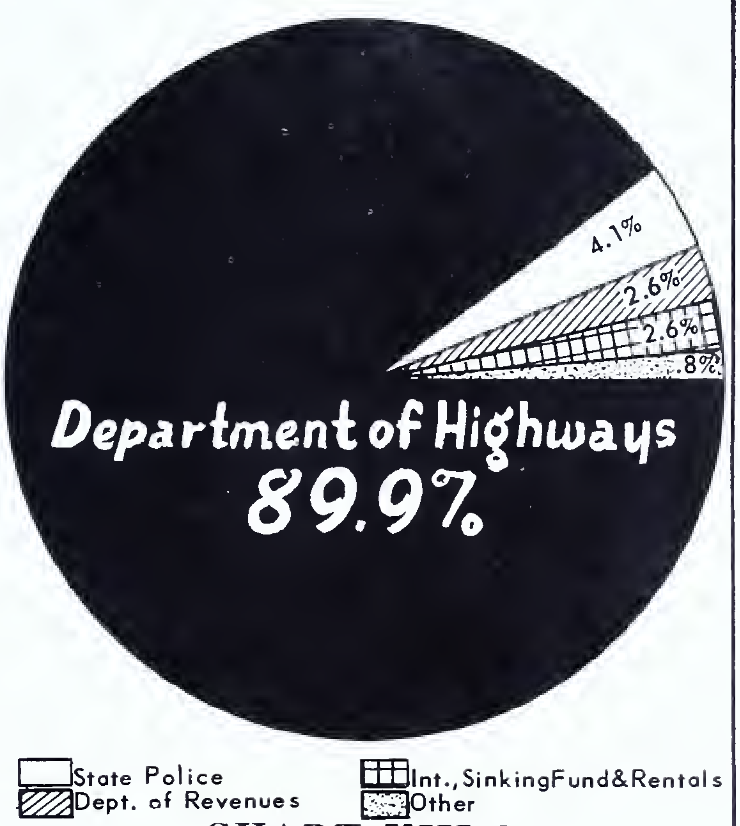


CHART VIII-2
ESTIMATED EXPENDITURES
from MOTOR LICENSE FUND
1950-1962

OPERATING EXPENSES, DEPARTMENT OF HIGHWAYS

In estimating the Department's financial responsibility, the Commission has assumed that the State will be responsible only for Trunkline Highways, Intercommunity Roads and Community Service Roads – not for Local Roads, except in the case of the counties and except for Local Roads owned by the State which cannot be exchanged for Community Service Roads now owned by second-class townships. Operating expenditures for the Department of Highways, including State aid, for the above mileage of roads are shown in Table VIII-2 and in Chart VIII-3. The Systems involved and the number of miles in each are discussed in Chapter VI.

State aid. The recommended program for State grants is based primarily on the needs of the local units as determined by the Commission's studies. (See section on Local Finance.) An essential part of the program is based on the assumption that local revenues will continue to be used at their present rate for the continuance of highway work. Without this support it would not be possible to bring Local Roads up to minimum standards or to give them adequate maintenance. Thus the State grants recommended by the Commission are intended to supplement but not to replace local revenues. References in the present laws to the effect that State aid is being rendered as a means of tax relief should be eliminated.

The total of State aids under the Commission's program is almost the same as the amounts now set aside although the distribution will be different. Currently, the State is giving $10,000,000 per year to the cities, boroughs and townships, and about $10,500,000 per year to the counties for a total of about $20,500,000. Proposed payments to the counties total $2,500,000 per year for highways and an averare of $2,600,000 for debt service. The other units would get $15,000,000 per year – a total of $20,100,000. As will be pointed out, the amount of State revenue now going for grants compares favorably with similar efforts of adjoining states. The proposed aids for the political subdivisions maintain that situation.

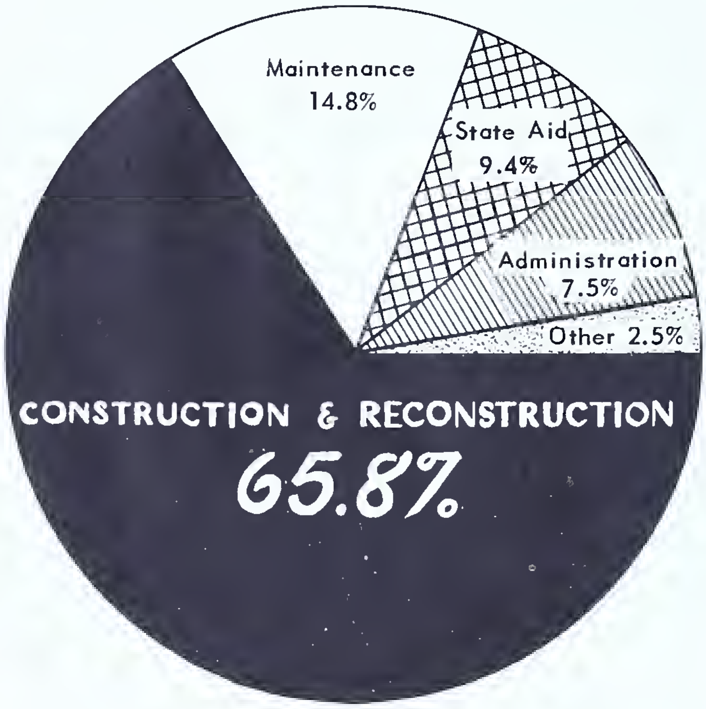


CHART VIII-3
ESTIMATED DEPARTMENT of HIGHWAYS' EXPENDITURES
1950-1962

Proposed annual highway aid amounting to $17,500,000 is considerably more than the total of amounts now being supervised by the Department of Highways. One reason is that the county highway grants formerly paid out of the Liquid Fuels Tax Fund are now included. Since the Department of Highways would be responsible for the distribution of county grants, this fund would no longer serve any useful purposes and should, therefore, be abolished.

The Commission believes that some definite portion of State grants for highway purposes should be set aside for the express purpose of road and bridge improvement, and that it should be matched 50-50 by local units. This policy provides an assurance that State aid will, in part, stimulate the construction of better Local Roads through equal participation of State and local governments. But since highway improvement represents a smaller share of all Local Road needs, it was also felt that 20 percent of the grants to local governments would be a reasonable amount to devote to this purpose. In most cases, the political subdivisions can match this grant and still have ample construction funds available for their own use.

As discussed in Chapter IV, it has also been recommended that the Local Road System be divided into two parts – Local Service Roads and Property Access Roads. In effect, this method of classification determines the priority of road improvement by designating which of the local highways perform the greatest service. The Commission believes that all State money granted for construction should first be spent on the Local Service Roads and that no such funds should be spent on the Property Access Roads until the more important part of the System has been fully brought up to standards acceptable to the Secretary of Highways. Since many miles of Property Access Roads will not require improvement, it is possible that some few units will eventually have no need for road improvements of any kind. In those cases, the Secretary of Highways should be authorized to permit these units to spend their construction subsidies on maintenance.

As discussed in Chapter VI, the Commission has recommended that State grants for highway improvements should not be given to any local government unless it is considered to be an economic Highway Work Unit. Since many units will not be immediately eligible, the State, in fairness to all concerned, should set aside their grants for a reasonable period in order to give them a chance to qualify. It is thus suggested that all construction money be held for the use of these governments for a period of four years. If at the end of this period they are still ineligible, then all such funds should revert to the Motor License Fund. However, in those cases where suitable road units are formed, the sum of the grants available for each government participating should be a grant available for the use of the Highway Work Unit.

Grants for future mileage transfers. As stated in Chapter VI, the Commission does not believe that the proposed transfer of mileages will result in financial hardships, except in the case of second-class townships which take over Local Roads now on the State System which cannot be exchanged for an equal mileage of Community Service Roads.

The Commission believes that where second-class townships accept Local Roads from the State resulting in a net gain in their ownership of Local Roads, the State should extend a grant to such units which would approximately represent the State's saving in making this transfer of administration. It has been estimated that if all State-owned Local Roads were given back to the second-class townships and all Community Service Roads taken in exchange, State expenditures would drop by about $5,505,000 per year or an average of $686 per year per mile. Savings in individual circumstances would vary by road type. For example, transfer of bituminous treated highways would cause a reduction in expense of approximately $800 per mile per year, while stabilized or unimproved roads would reduce expense by $300 per mile per year. Any grant extended to the second-class townships should consider the nature of the saving when highways of various types are returned to local ownership. This arrangement should facilitate changes of ownership since no local government would be required to undertake a program of highway financing beyond its present level of effort.

Highway improvements (construction and reconstruction). The Commission engineers calculated it would require $1,473,300,000 over the next 12 years to bring all of the Trunkline, Intercommunity and Community Service Systems up to mimimum standards. (See Chapter IV.) If the State were to confine itself only to administration of these roads, this amount would represent its share of the 12-year program. However, the estimate of the State's burden of road improvement is based upon a somewhat different arrangement.

This is shown in Table VIII-1 below.

The Commission's proposed total construction and reconstruction expenditures are higher than the present rate of expenditures for these highway functions. For example, in the 1948-49 fiscal year the Department of Highways spent approximately $111,000,000 for these functions, whereas the Commission's proposed program requires an average annual expenditure of $122,483,510. Nevertheless, the Commission believes that these expenditures are the minimum necessary to provide adequate highways for the Commonwealth's economy.

SUMMARY OF THE PROPOSED FINANCIAL PROGRAM

The proposed 12-year financial program for the State is summarized in Table VIII-2. It shows that there is estimated to be sufficient revenue to pay for the construction and improvement outlays recommended by the Commission engineers.

Table VIII-1

ESTIMATED COST OF STATE SHARE OF PROPOSED IMPROVEMENT PROGRAM

Total Trunkline, Intercommunity and Community Service program cost	$1,473,300,000
Less: County-owned Trunkline, Intercommunity and Community Service Roads and bridges	10,093,000
Philadelphia City - Trunkline, Intercommunity and Community Service Roads	669,000
Balance	$1,462,538,000
Plus: State-owned Local Roads	8,415,000
Total State responsibility	$1,470,953,000

Table VIII-2

PROPOSED FINANCIAL PROGRAM FOR MOTOR LICENSE FUND

1950-62

Estimated revenues		
Gasoline tax		$1,424,325,000
Motor licenses and fees		716,370,000
Federal aid		288,000,000
Miscellaneous		57,908,000
Total		$2,486,603,000
Estimated expenditures		
General expenses		
Interest, sinking fund and rentals	$ 63,518,000	
Pennsylvania State Police	100,000,000	
Department of Revenue	63,900,000	
State employees' retirement	10,170,000	
Miscellaneous	10,020,000	
Subtotal	$ 247,608,000	
Highway Department expenses		
State aids	$ 210,000,000	
Administration	166,800,000	
Maintenance	329,500,000	
Purchase of food, tools, etc.	37,700,000	
Special work	16,700,000	
Construction and reconstruction	1,470,953,000	
Subtotal	$2,231,653,000	
Total		$2,479,261,000
Balance		+ $ 7,342,000

There is, therefore, no reason to suggest any increase in the present level of motor vehicle taxes or the liquid fuels tax.

On the other hand, any reduction would immediately place the necessary income below the proposed level of expenditures. The excess of income is so small that it merely offers the assurance that the improvement program can be paid for with present taxes.

RECOMMENDATIONS

The Commission, therefore, recommends that:

1. State grants to the boroughs, cities and townships be increased to $15,000,000 per year or $180,000,000 for 12 years, and that such funds be distributed to these units (as will be discussed below in the section on the proposed State-aid formula) on the basis

of 50 percent for their relative shares of population and 50 percent for their relative shares of Local Road mileage. Further, that the counties be granted $2,500,000 per year or $30,000,000 for 12 years for highway purposes, and that such funds be distributed on the basis of "bridge formula" (as will also be discussed).

2. When the State surrenders Local Road mileage to the second-class townships which cannot be exchanged for an equal mileage of Community Service Roads, then the State should give a direct mileage subsidy which is the equivalent of the savings involved. This grant should be in addition to any others.

3. Twenty percent of all of the State grants for highway purposes be earmarked as construction aids to be made available only if the local unit matches each dollar of this fund with one dollar of local revenue and can qualify as a Highway Work Unit. (See Chapter VI on Highway Administration.) Further, that State funds earmarked for construction should first be spent on the Local Service Roads until they are up to established standards and then on the Property Access Roads. Only when all Local Roads are improved to acceptable standards should the Secretary of Highways authorize such units to spend all of their grant on maintenance.

4. No subsidies should be extended to units which have no Local Roads and bridges.

5. Local mileage of second-class townships should be eligible for only one form of subsidy and if it is receiving a direct mileage grant from mileage transfers it cannot be included in a population and mileage formula.

6. The State Department of Highways assume responsibility for the administration of all State highway grants, including payments to the counties.

7. The State gives the State Highway and Bridge Authority sufficient money each year to liquidate county highway debt as outlined later in the section on Financing County Roads.

8. The Liquid Fuels Tax Fund be abolished and the one-half cent gasoline tax now set aside for the counties be added to the Motor License Fund.

9. All reference to State aid being rendered as a means of relieving local taxation should be eliminated from present legislation.

State Grants to Local Roads

Methods of administering State aid in Pennsylvania have taken many forms in past years. They included bonuses for collecting road taxes in cash and reward payments for road construction as well as the present day shared taxes and lump sum allocations. The current system of State grants for local roads has developed from these various methods of assisting local highway development. These methods of State aid are shown in Chart VIII-4.

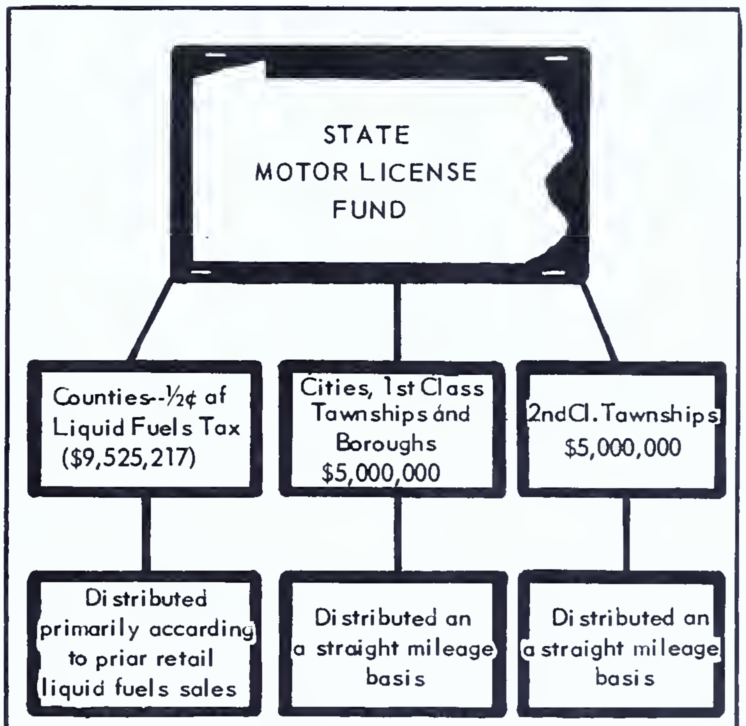

STATE MOTOR LICENSE FUND
Counties--½¢ of Liquid Fuels Tax ($9,525,217)
Cities, 1st Class Townships and Boroughs $5,000,000
2nd Cl. Townships $5,000,000
Distributed primarily according to prior retail liquid fuels sales
Distributed on a straight mileage basis
Distributed on a straight mileage basis

CHART VIII-4
DISTRIBUTION OF
STATE AID IN PENNSYLVANIA
1948

The effectiveness of State aid in Pennsylvania can be better evaluated if it is compared with the efforts of adjoining states. However, it must be recognized that inherent differences such as topography, governmental organization and historical background tend to qualify any such comparison.

AID FORMULAS IN NEIGHBORING STATES

There seems to be no definite pattern of State aid in Pennsylvania and neighboring states. Funds are derived from both highway-user revenues earmarked for highway purposes and from general taxation. Some states allocate percentages of certain types of user revenues while others make lump sum allocations. Aids are distributed on such varied bases as: equal amounts to each unit; mileage; mileage with specified minimums; population and mileage; area, population and mileage; motor vehicle registration; and real estate values.

STATE-LOCAL MILEAGE RELATIONSHIPS

There is a large variation in the amount of locally-owned mileage in the several states. This fact is of vital importance in comparing State aid, as every mile of road owned by the State over and above the average degree of State ownership represents an additional form of State help for local units. Furthermore, this assistance is usually far greater than the actual excess of mileage might indicate, since in practically all cases such mileage is of a higher-type and necessitates a much greater capital outlay per mile for the various highway functions than does the usual locally-owned mileage.

Pennsylvania is conspicuously high in its percentage of State-owned mileage,. as indicated by Table VIII-3and Chart VIII-5.

If the State Rural System, consisting of 26,331 miles of roads is included in local road mileage, not only is this State's System more comparable to the adjoining states, but Pennsylvania State-owned mileage is found to be about average in relation to total mileage. This inclusion of the State Rural System for comparative purposes seems justified, as mileage of a similar nature is locally-owned in the adjoining states.

Table VIII-3

COMPARISON OF STATE HIGHWAY MILEAGE OWNERSHIP IN PENNSYLVANIA AND ADJOINING STATES

	Percent of Total Mileage Owned by State	*Percent of All Rural Mileage*	*Percent of All Urban Mileage*
Maryland	23.1	25.3	8.5
New Jersey	6.2	7.2	4.2
New York	14.4[a]	17.5[a]	0
Ohio	17.5	18.7	12.1
Pennsylvania	40.6	44.7	18.4
Average	20.4	22.7	8.6
Pennsylvania (excluding State Rural System)	14.6	15.2	11.2[b]
Average	15.2	16.8	7.2

[a] Estimated.

[b] As determined by Department of Highways, 1949.

SOURCE: U.S. Bureau of Public Roads.

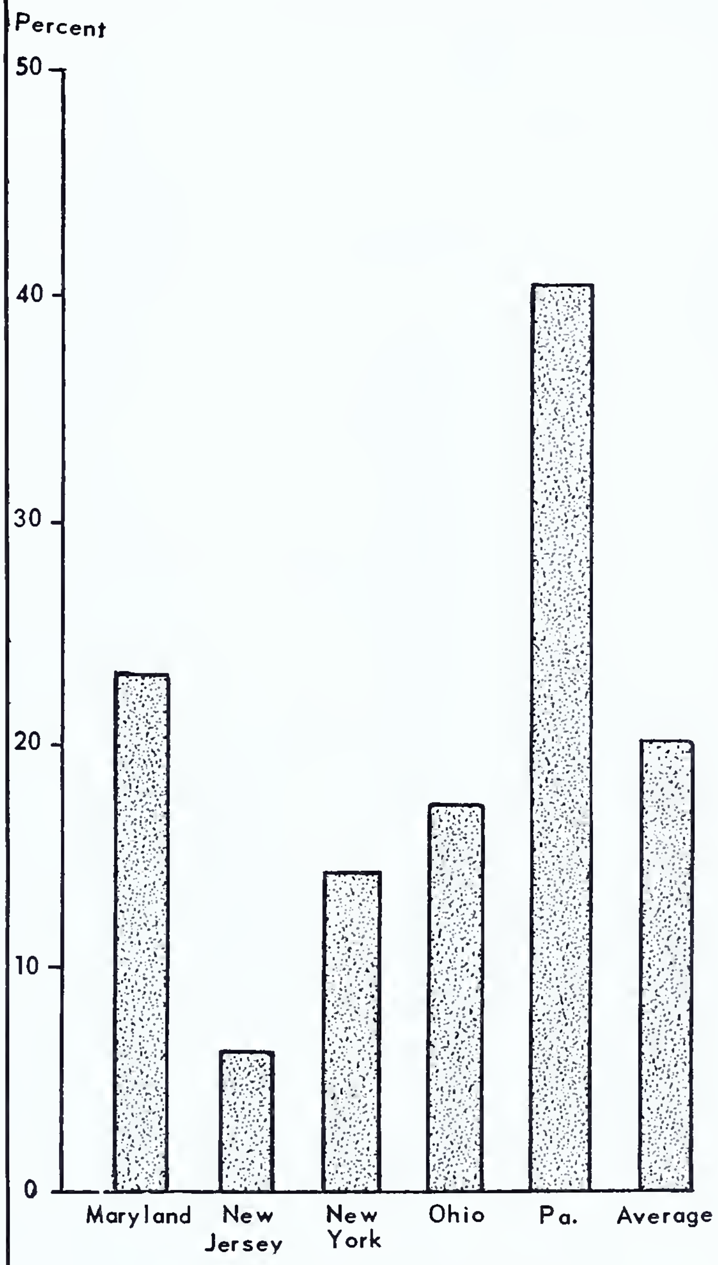


CHART VIII-5

STATE HIGHWAY MILEAGE as a PERCENTAGE of TOTAL MILEAGE

VARIATION IN STATE-AID POLICY

If State aid is considered as including amounts spent on the State Rural System and on the urban extensions of all State roads, a basis for comparsion exists. The various road Systems then become quite similar in all respects. Table VIII-4 and Chart VIII-6 show that on this basis, Pennsylvania compares favorably with adjoining states in relative degree of State aid and amount of aid per mile of local roads.

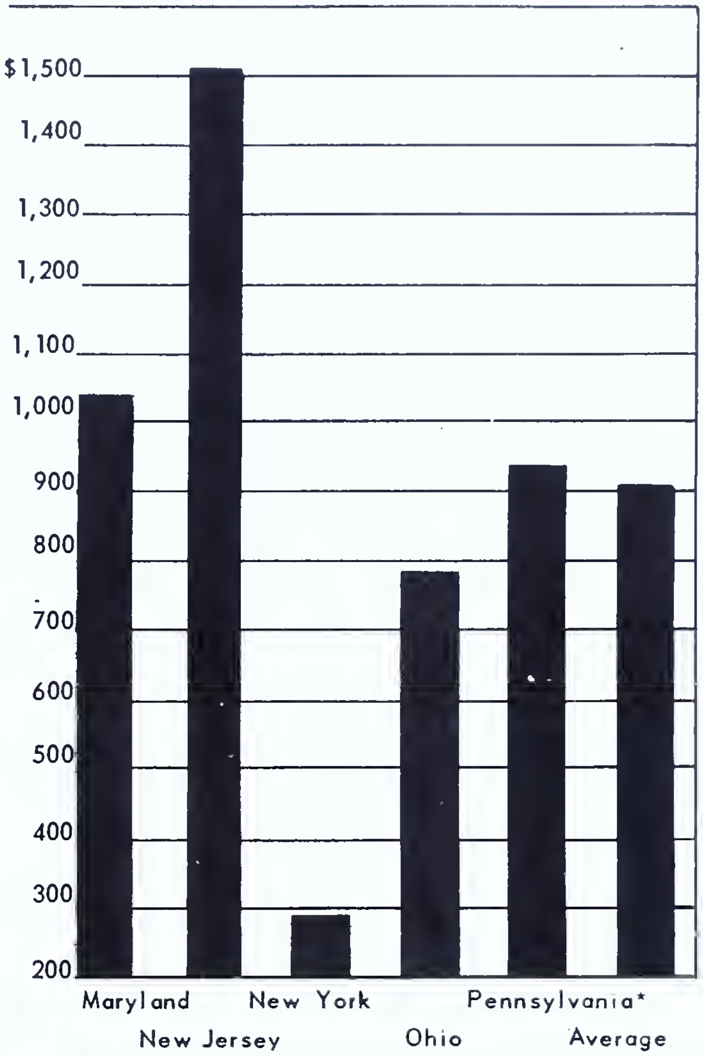


CHART VIII-6
STATE AID PER MILE
to LOCAL ROADS
BORDERING STATES-1948

*State Aid includes expenditures on State Rural System.

Local rural income vs. State aid. From the viewpoint of the local rural units, Pennsylvania's State-aid grants might seem to rank low, with State aid a relatively small percentage of all local highway revenue. But if for purposes of comparison, the State Rural System were classed as a local highway network, then Pennsylvania immediately becomes one of the largest State contributors to local road expenditures. (See Table VIII-5 and Chart VIII-7.)

Summary. Thus when allowances are made for the irregularities in mileage ownership, Pennsylvania appears to be well in line with the other states. Moreover, Pennsylvania ranks somewhat higher than average in the case of local rural roads as compared with the other states.

Table VIII-4

STATE AID TO LOCAL ROADS AND STREETS IN PENNSYLVANIA AND ADJOINING STATES[a]

1948

	Percentage of Total State Disbursements	*Aid per Mile*
Maryland	31.4	$1,042
New Jersey	58.4	1,509
New York	11.8	287
Ohio	50.6	783
Pennsylvania	42.7	942
Average	39.0	$ 913

[a] This includes direct State aid to political subdivisions, State expenditures on urban extensions of State highways, and State expenditures on secondary roads under State control.

SOURCE: U.S. Bureau of Public Roads.

Table VIII-5

SOURCES OF INCOME FOR LOCAL RURAL ROADS

1947

	From State Aid	*From Federal Aid*	*From Local Revenue*
Maryland	56.9	14.4	28.7
New Jersey	56.9	1.2	41.9
New York	38.4		61.6
Ohio	80.9		19.1
Pennsylvania	37.7		62.3
Average	54.2	3.2	42.7
Pennsylvania (including State Rural System)	69.6		30.4
Average	60.5	3.1	36.4

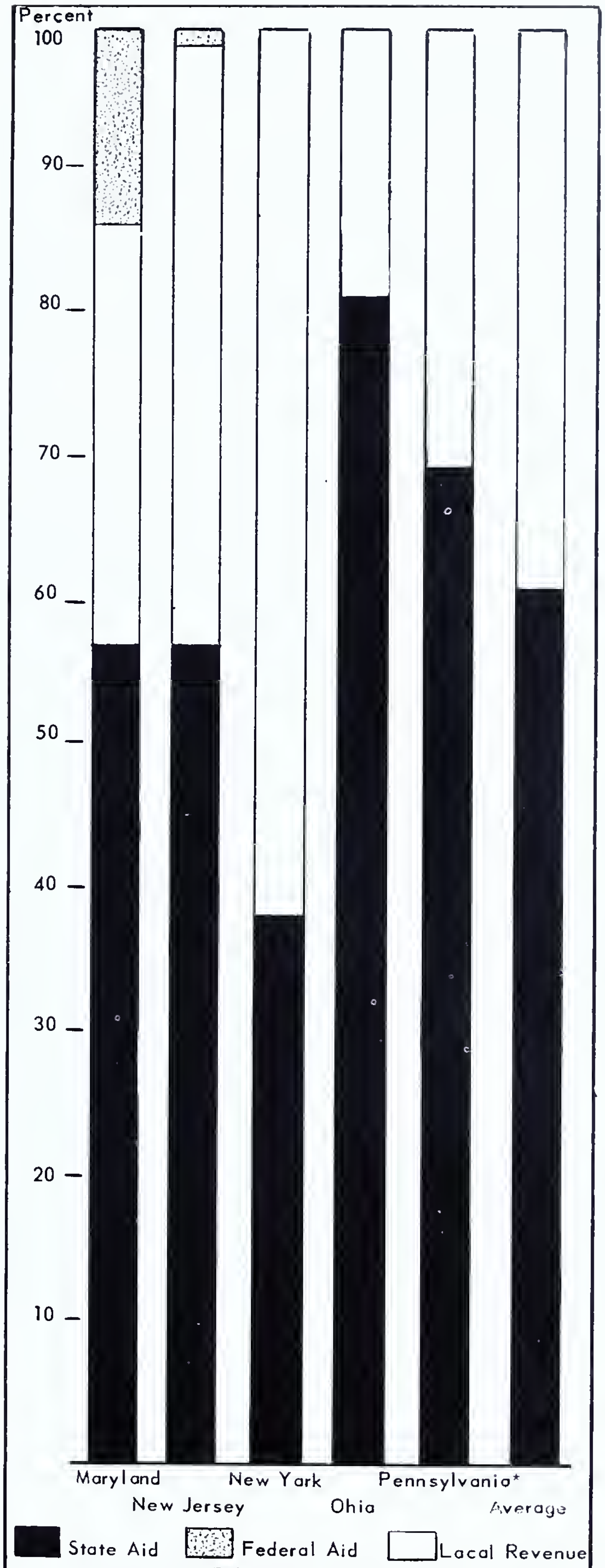


CHART VIII-7
COMPARISON OF INCOME FROM STATE AID, FEDERAL AID and LOCAL REVENUE for LOCAL RURAL ROADS

*State Aid includes expenditures on State Rural System.

As a result of the comparison of State aid in the several states, it is found that direct State aid for local highways in Pennsylvania is noticeably less than adjoining states due to the abnormally high percentage of State-owned highway mileage. When, however, expenditures on the State Rural System are considered as State aid, Pennsylvania compares favorably with its adjoining states.

A State-Aid Formula for Pennsylvania

State financial aid for highways helps local governmental units meet the increasing need for better Local Roads.

An ideal formula should result in a more equitable distribution of the highway financial burden among all these units. Any formula for State aid should be judged by the degree to which it accomplishes this purpose.

CHARACTERISTICS OF A GOOD FORMULA

While a State-aid formula may take many forms, as was previously indicated by the comparison of the formulas of Pennsylvania and its adjoining states, the Commission believes that it should contain these characteristics.

It should be simple. A formula must be simple enough so that every political unit can readily know the amount of aid it is to receive. In this way it can better plan its highway program.

It should reflect local needs. Since a formula is intended to help equalize the burden of highway operations, it must be based on highway needs. Such factors as the number of road miles and their degree of development, the number and size of bridges, and fluctuations in travel all serve to establish the type of highway system and the costs of operation.

It should minimize administrative interpretation. Although an inflexible State-aid formula sometimes results in cases of individual hardship, its advantages exceed its disadvantages. The administrative interpretations involved in a flexible formula often become involved and cumbersome. They invite discrimination and result in uncertainty. A specific formula is easily administered and impartial.

FACTORS FOR DETERMINING STATE AID

Mileage. A straight mileage formula is the most beneficial to sparsely populated rural areas. In general, they have the smallest percentage of superior road surfaces and their actual State aid would thus amount to a high percentage of highway expenditures because of low maintenance costs.

The Commission believes that mileage alone as a basis for distributing State grants for highways does not adequately reflect the need for such aid. It does recognize the desirability of help for areas with many miles of road and few local residents to support them. But because road systems are not uniform, support on this basis alone tends to have a discriminatory effect.

Population. State aid on the basis of population alone favors highly developed areas. Pennsylvania's cities, for example, have nearly 14 times as many persons per mile of road as the second-class townships. Therefore, cities would receive nearly 14 times as much State aid per mile of highways as the second-class townships. Differences in costs of road management do not justify any such distribution of financial aid.

However, the population factor does give weight to road use and road costs. In areas where population per mile of road is high there is also a large number of motor vehicles, necessitating highly developed roads and greater road expenditures per mile.

Vehicle registration. Vehicle registration is sometimes used as a means for distributing State grants to local units. But vehicle ownership is generally proportionate to population, except in the largest cities, and can be considered as having about the same effect on a State-aid formula as population.

Area. A State-aid formula which includes area may weigh heavily in favor of rural sections of the State. Many rural units have large and relatively undeveloped areas with a simple but extensive highway system. In this respect, area sometimes may be a rough indication of mileage. However, by itself it is not as good a factor as actual mileage. To include it as a factor along with mileage would overweight the formula in favor of sparsely settled areas and ignore the fact that some parts of the State need more intensive highway development than others.

Others. The Commission also considered other factors such as equal distribution among local highway units and real estate assessments, but it found no reason to recommend any of these.

FEDERAL-AID FORMULA

The Federal formula gives equal weight to mileage, population and area. Here the inclusion of area was designed to accelerate road developments in the sparsely populated regions of the country with a view toward the rapid development of a national highway network. But Pennsylvania's State-aid program is not comparable to the Federal-aid program. In Pennsylvania the State owns and builds those roads that form its major highway network, regardless of location. The Federal-aid formula is thus not suitable as a basis for State aid in Pennsylvania.

A FORMULA FOR CITIES, BOROUGHS AND TOWNSHIPS

As discussed in Chapter VII, the present system of State grants to cities, boroughs and townships has not been satisfactory. In the course of its work, the Commission studied various methods. Each of them would result in some degree of change from the present system as illustrated in Table VIII-6 and Chart VIII-8.

The Commission finds that State grants based on 50 percent population and 50 percent mileage will better fit the needs of most local highway units. The population factor will give weight to the high road costs and road use found in heavily populated units, whereas the mileage factor weighs in favor of the extensive road systems and limited resources of rural areas. This method of allocation, therefore, gives equal treatment to the requirements of both urban and rural highway units. The formula is simple

Table VIII-6

ALLOTMENTS TO POLITICAL DIVISIONS UNDER SELECTED METHODS OF STATE GRANTS

(Shown by percentage received by each group from the total grant)

	Present System[a]	*Basis of Grant 50 Percent Mileage and 50 Percent Population*	*1/3 Mileage, 1/3 Population, and 1/3 Area*
Cities	21.8%	26.8%	18.3%
Boroughs	21.8%	17.7%	12.6%
First-class townships	6.4%	4.0%	3.1%[b]
Second-class townships	50.0%	51.5%	66.0%
Total grant	100.0%	100.0%	100.0%

[a] Excluding counties. Lump sums are allocated to the second-class townships and the cities, boroughs and first-class townships and then are distributed on a straight mileage basis.

[b] Area of townships excludes borough area within the townships.

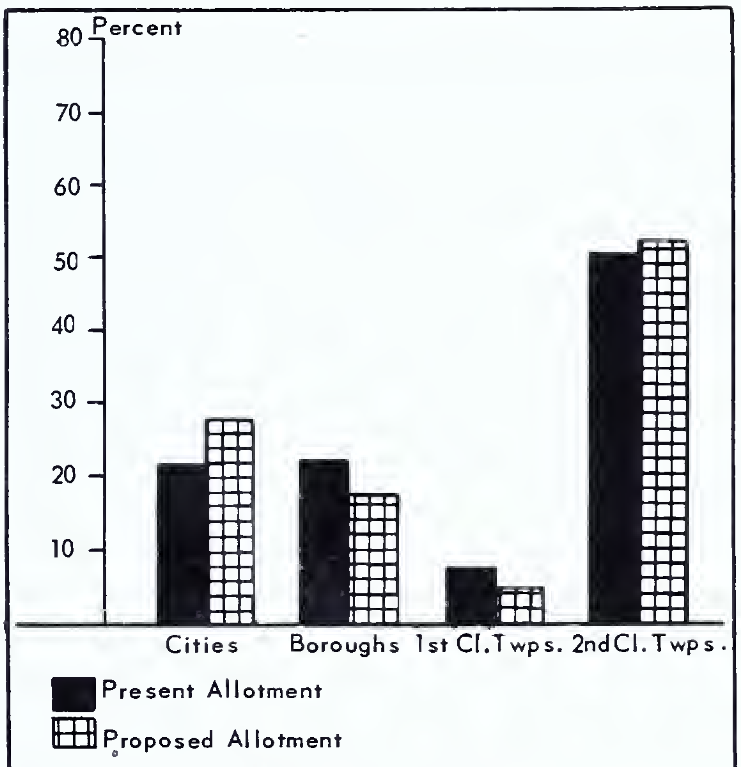


CHART VIII-8

STATE-AID ALLOTMENTS-PRESENT and PROPOSED

and can be easily applied. Its application and its financial results are shown later in this Chapter.

How maintenance reflects needs. The proposed formula also provides a better distribution of aid within the various political groups. While it is not practical to show exactly what will happen in every individual case, this can be indicated by a comparison of the degree to which State aid helps to pay maintenance costs. For one thing, maintenance expenditures are the greatest item of expense in all local highway budgets. They also reflect the length of the road system, the type of roads in the system and the degree of use which these roads receive. Thus maintenance costs are largely indicative of the local road problems.

Furthermore, the same general factors which influence maintenance costs also tend to influence construction costs, so that State help which is proportionate to maintenance should offer equitable assistance in improvement needs. This idea is not entirely accurate, however, because on high-type roads (such as concrete) maintenance costs are

Table VIII-7

PRESENT AND PROPOSED STATE-AID ALLOTMENTS TO SECOND-CLASS TOWNSHIPS COMPARED WITH MAINTENANCE COSTS

(Shown by percentages for population groups)

Population Group	*Percent Received from Total Second-Class Township Grant under Present System (mileage)*	*Percent Receivable on Basis of 50 Percent Mileage and 50 Percent Population*	*Percent of Total Second-Class Township Maintenance Expenditure*
0 - 500	6.9%	4.9%	4.6%
500 - 1,000	25.2%	19.6%	18.3%
1,000 - 1,500	21.4%	18.2%	18.8%
1,500 - 2,000	13.3%	13.0%	12.0%
2,000 - 3,000	14.3%	15.5%	15.4%
3,000 - 5,000	9.4%	14.3%	14.0%
5,000 and over	9.5%	14.5%	16.9%
Total	100.0%	100.0%	100.0%

not as high, relatively, as construction costs. Thus cities must spend more for construction than the rural units which need most of their money for upkeep. Nevertheless, maintenance expenditures can be used as a general guide to the fairness of the formula.

Effect of formula on second-class townships. Second-class townships will receive a more equitable distribution of State aid under the proposed formula than under the present system. (See Table VIII-7.) The proposed aid pattern will follow the maintenance expenditure pattern much more closely than does the State aid of the present system.

Effect of formula on boroughs. Under the proposed formula the boroughs also will receive State aid in a manner better suited to their needs. (See Table VIII-8.) While the aid pattern will not follow the maintenance expenditure pattern as closely in the boroughs as in the second-class townships, it will be closer than the present method.

Effect of formula on first-class townships. Again, in first-class townships the proposed formula will distribute aid more nearly according to maintenance expenditures than does the present system. Table VIII-9 reveals that aid distribution will be essentially the same for townships up to 5,000 population but from there on the proposed formula will better fit the pattern of needs.

Effect of formula on cities. Cities will receive a percentage increase of total aid under the proposed formula. (See Table VIII-6.) Changes in allotment to various classes of cities are shown in Table VIII-10.

The complexity of most city road systems makes them individual problems but, so far as can now be determined, the present method of granting State money to the cities is generally satisfactory. As will be noted from Table VIII-10, the proposed formula does not make any substantial changes from the current arrangement. In view of the proposed increase in the total amount of State-aid grants discussed earlier in this Chapter, however, all cities will benefit.

Table VIII-8

PRESENT AND PROPOSED STATE-AID ALLOTMENTS TO BOROUGHS COMPARED WITH MAINTENANCE COSTS

(Shown by percentages for population groups)

Population Group	*Percent Received from Total Borough Grant under Present System (mileage)*	*Percent Receivable on Basis of 50 Percent Mileage and 50 Percent Population*	*Percent of Total Maintenance Paid by Each Population Group*
0 - 1,000	15.8%	11.5%	7.4%
1,000 - 5,000	37.0%	38.0%	31.3%
5,000 - 10,000	27.2%	27.8%	30.7%
10,000 and over	20.0%	22.7%	30.6%
Total	100.0%	100.0%	100.0%

Table VIII-9

PRESENT AND PROPOSED STATE-AID ALLOTMENTS TO FIRST-CLASS TOWNSHIPS COMPARED WITH MAINTENANCE COSTS

(Shown by percentages for population groups)

Population Group	*Percent Received from Total First-Class Township Grant under Present System (mileage)*	*Percent Receivable on Basis of 50 Percent Mileage and 50 Percent Population*	*Percent of Total First-Class Townships Maintenance Expenditure*
0 - 2,500	2.7%	2.6%	2.6%
2,500 - 5,000	11.2%	11.2%	11.2%
5,000 - 10,000	28.1%	25.2%	23.1%
Over 10,000	58.0%	61.0%	63.1%
Total	100.0%	100.0%	100.0%

Table VIII-10

ALLOTMENT TO THE CITIES UNDER PRESENT AND PROPOSED SYSTEMS OF STATE GRANTS

	Percent Received from Total City Grant under Present System (mileage)	*Percent Receivable on Basis of 50% Mileage and 50% Population*
Philadelphia	36.5%	40.4%
Pittsburgh	14.6%	15.0%
Scranton	3.2%	3.2%
Third Class Cities	45.7%	41.4%
Total	100.0%	100.0%

A FORMULA FOR COUNTIES

As discussed in Chapter VII, the existing method of allocating State highway aid to the counties has not been satisfactory. It has benefited some units and handicapped others. Some counties have had surplus funds which they have redistributed to other units of government. A formula is needed, therefore, which will better express the needs of the counties and so help to iron out some of the present injustices.

The system used for other units of government cannot be applied to the counties because, unlike other groups, the counties have very little road mileage. Counties now own about 763 miles of road, of which 96 percent is controlled by only four counties. Under the program recommended by the Commission, county mileage should eventually be reduced to about 320 miles.

However, 64 out of 67 counties are now responsible for a total of about 3,300 bridges. This is the major highway problem in most of the counties and will remain so under the Commission program. Under these circumstances, a formula designed to assist the counties should place its emphasis on bridge ownership and bridge operational costs.

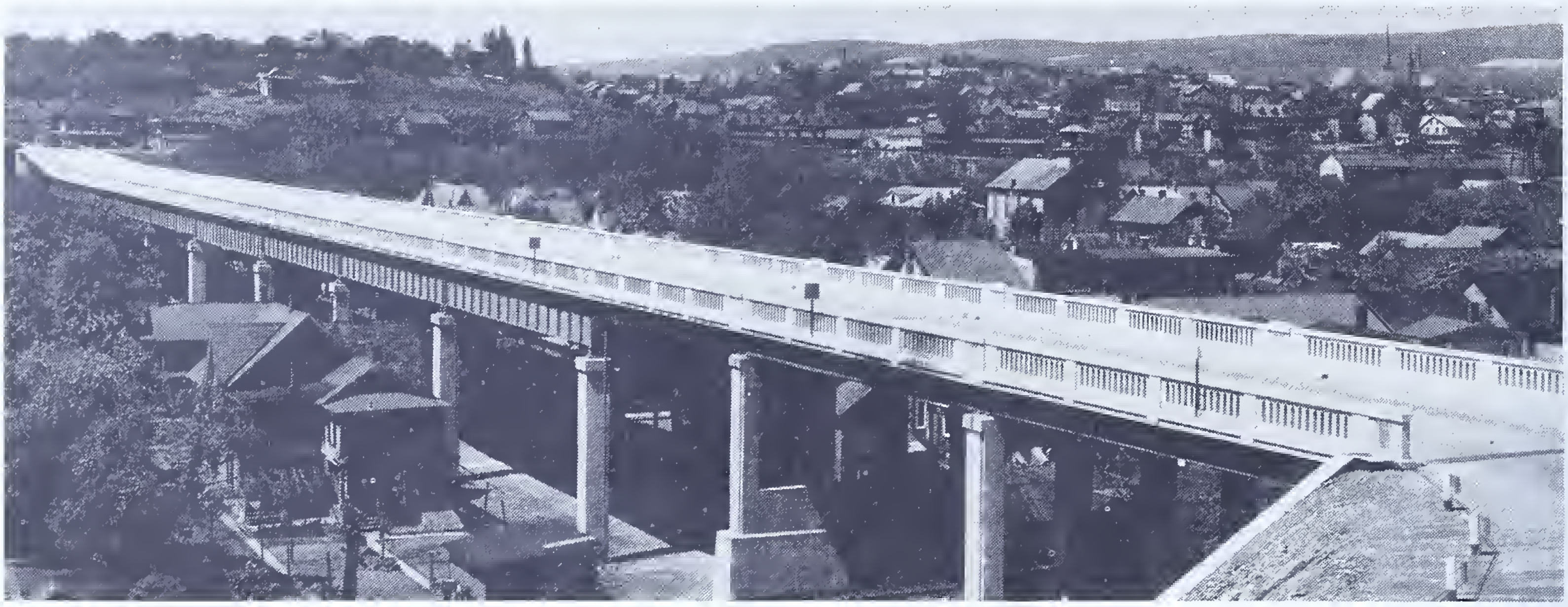
It is proposed, therefore, that instead of the system now used, State grants to the counties for highway purposes be distributed in the proportion that the number of square feet of individual county bridges bears to the total number of square feet of all county-owned bridges. Bridge area was chosen because it is a reliable guide to the cost of maintaining or rebuilding various sizes of bridges. Since area indicates the relative cost of bridge operation, it is also a good measurement of the highway management problems which face the individual counties.

In Table VIII-11 is shown the estimated distribution of State-aid money under this formula. Counties which have no roads and no bridges will receive no help for highway activities, nor do they require any. On the other hand, those units which have the greatest number of large bridges, such as Allegheny and Philadelphia, will receive a larger share of total aid.

In some cases the portion going to individual counties would be considerably changed but the Commission believes that a "bridge formula" is the best method of assisting the counties.

Table VIII-11
STATE AID TO COUNTIES, PROPOSED ALLOCATION COMPARED WITH PRESENT SYSTEM BY PERCENT OF TOTAL

County	*Present System*	*Percent of Square Feet of Bridge Area*	*County*	*Present System*	*Percent of Square Feet of Bridge Area*
Adams	.59	.49	Lancaster	2.67	.93
Allegheny	13.98	24.31	Lawrence	1.02	.17
Armstrong	.69	.54	Lebanon	.80	.27
Beaver	1.40	.57	Lehigh	2.30	.67
Bedford	.49	.60	Luzerne	3.54	3.05
Berks	3.04	2.59	Lycoming	1.23	.38
Blair	1.47	.61	McKean	.81	.17
Bradford	.63	1.57	Mercer	1.13	2.48
Bucks	1.35	1.99	Mifflin	.47	.57
Butler	1.08	1.26	Monroe	.66	.34
Cambria	1.61	.38	Montgomery	4.00	2.55
Cameron	.07	.07	Montour	.14	.21
Carbon	.55	.29	Northampton	1.88	.69
Centre	.63	.09	Northumberland	1.27	.89
Chester	2.05	1.73	Perry	.28	.60
Clarion	.39	.29	Philadelphia	15.27	30.37
Clearfield	.79	.40	Pike	.12	.22
Clinton	.34	.19	Potter	.23	
Columbia	.58	.93	Schuylkill	2.01	.91
Crawford	.83	.64	Snyder	.24	.24
Cumberland	1.00	.94	Somerset	.72	.92
Dauphin	2.10	.68	Sullivan	.09	.19
Delaware	3.27	.81	Susquehanna	.33	.41
Elk	.31	.04	Tioga	.42	.67
Erie	2.42		Union	.19	.41
Fayette	1.71	.61	Venango	.91	.43
Forest	.05	.18	Warren	.50	
Franklin	.85	.51	Washington	1.93	1.81
Fulton	.12	.06	Wayne	.35	.36
Greene	.38	1.21	Westmoreland	2.79	.68
Huntingdon	.43	.44	Wyoming	.31	.19
Indiana	.77	.60	York	2.14	1.19
Jefferson	.52	.50			
Juniata	.19	.14		100.00	100.00
Lackawanna	2.57	.77			



Bridge requirements are included with highway improvements in the Commission's recommendations for a 12-year program.

SUMMARY AND RECOMMENDATIONS

A good State-aid formula must be simple. It must be based on local needs. It must minimize individual interpretation. In this way all political subdivisions will know how much aid they can expect and they will receive aid which is appropriate for their highway networks without the uncertainties and complications of administrative judgment.

The Commission believes that a formula based on 50 percent population and 50 percent mileage meets those requirements. Moreover, the two factors combined distribute aid approximately in accordance with maintenance expenditures. The Commission believes this to be a reasonably adequate measure of local highway needs. The formula proposed is thus well suited to the problems of the cities, boroughs and townships and should be adopted.

The formula for county aid meets all essential requirements. In addition, it seems to be well suited to the peculiar problem of the counties which is the building and maintenance of bridges. It is, therefore, recommended that the bridge formula be adopted.

What Roads Earn

HOW ROADS GENERATE REVENUE

Roads generate tax revenue through the use made of them by motor vehicles. The extent to which each road or its parts induces travel represents its contribution to State highway income.

This income includes not only the gasoline tax but also motor vehicle license fees and other charges which are a preliminary but necessary expense incurred by all operators before they can use the highways. Federal aid can also be considered part of highway-user revenues because of Federal motor vehicles taxes.

One method of allocating State highway income is to assume that all of it is earned by travel. It is estimated that Pennsylvania's vehicle travel in 1948 was 23,340,289,000 miles. Revenue from all types of highway-user taxes that year was approximately $156,000,000, including the one-half cent gasoline tax returned to the counties by the Department of Revenue. Thus every mile of vehicle travel could be said to have earned $.006684.

EARNINGS OF VARIOUS SYSTEMS

Vehicle miles of travel on the four Systems have been calculated and the income which these Systems create has been estimated in Table VIII-12. It is plain that the State Highway Systems and the local streets in boroughs, cities and first-class townships provide the bulk of all revenue. (See Chart VIII-9.) Together they earned 96 percent of all highway-user income. The county and second-class township systems, which consist almost entirely of rural roads, show a very low yield with only four percent of the total, or $5,615,000, even though they contain nearly the same mileage.

State roads, on the other hand, with nearly 6,000 fewer miles than the local rural system earned about 17 times as much, or $97,300,000. Actually, the most productive of highways were those in the boroughs, cities and first-class townships which represent the local urban system. But if the State Systems are broken down into rural and urban parts, it can also be shown that the urban section, which has seven percent of the mileage earns $10,714 per mile or about 31 percent of the State Systems' revenue.

COMPARISON OF EARNINGS WITH RECEIPTS

It should be recognized that the receipts of the various road systems from highway-user revenue

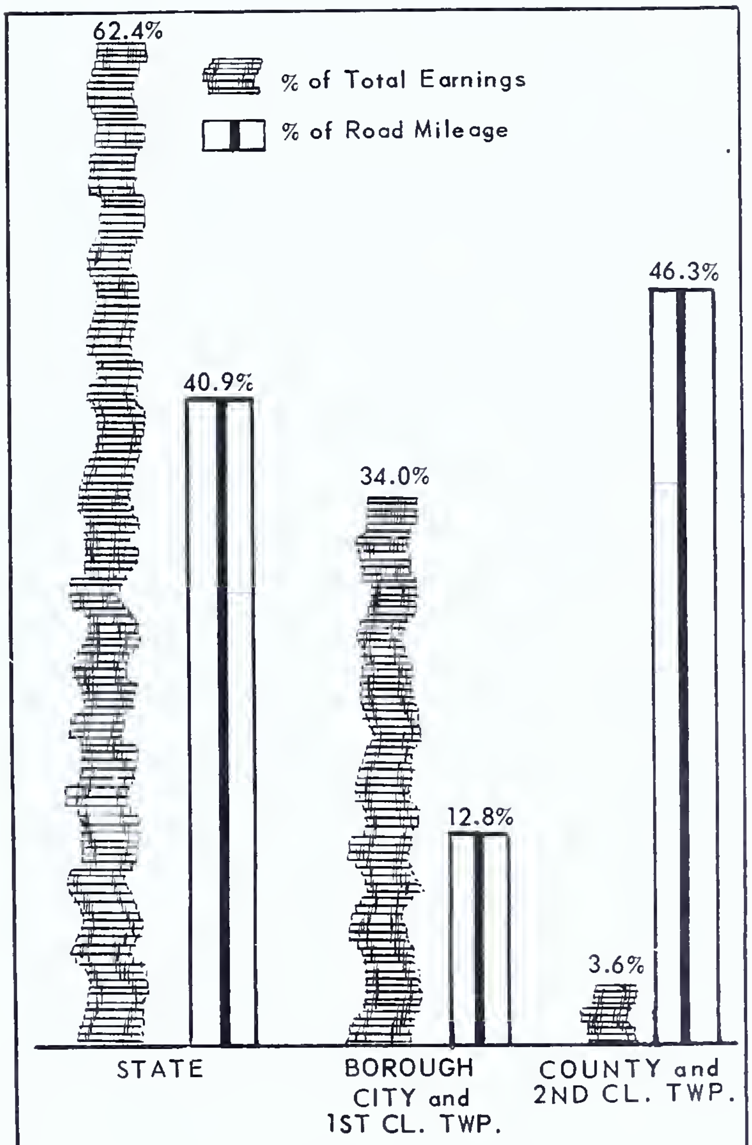


CHART VIII-9

COMPARISON of ROAD EARNINGS and ROAD MILEAGE of MAJOR SYSTEMS

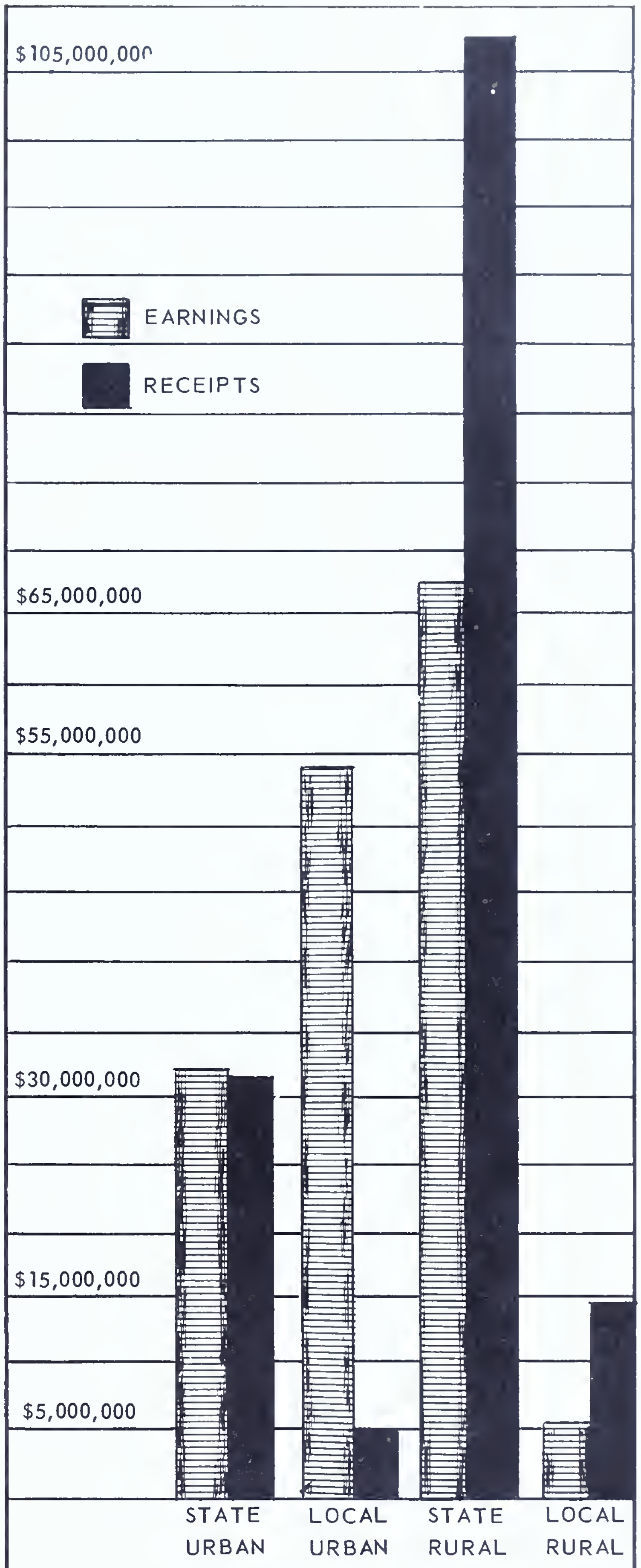


CHART VIII-10

COMPARISON of ROAD EARNINGS and RECEIPTS—URBAN and RURAL ROADS

Table VIII-12

ROAD EARNINGS BY MAJOR SYSTEMS

1948

	Vehicle Miles of Travel[a]	*Estimated Earnings*	*Percent of Total Earnings*	*Road Mileage*	*Percent of Total Mileage*	*Earnings per Mile*
State Highway Systems	14,564,000,000	$ 97,346,000	62.4	40,939	40.9	$2,378
County and second-class township roads	840,000,000	5,615,000	3.6	46,264	46.3	121
Borough, city and first-class township roads	7,936,000,000	53,044,000	34.0	12,770	12.8	4,154
Total	23,340,000,000	$156,005,000	100.0	99,973	100.0	$1,560

[a] Vehicle miles of travel as estimated by Highway Planning Section, Department of Highways.

are not in the same proportion as the revenue these systems produce. Urban roads make a substantial contribution of their earnings to other highway systems and thus help sustain the general vitality of statewide highway transportation. The amount of their assistance is shown in Table VIII-13 and Chart VIII-10. More than 90 percent of the revenue earned by boroughs, cities and first-class townships was turned over to the State Highway System and local rural roads. In 1948, this amounted to $48,044,000 - the State roads' share being $39,134,000, or 82 percent with the State rural roads receiving all of the benefits.

OPERATING COST OF VARIOUS SYSTEMS

The operating costs of the major highway systems is not uniform. And because expenditures necessary to build and maintain high income roads are greater than for low income roads, this variation should also be considered in judging the earning

Table VIII-13

COMPARISON OF ROAD EARNINGS WITH RECEIPTS FROM THE MOTOR LICENSE FUND AND LIQUID FUELS TAX FUND ON MAJOR SYSTEMS

1948

	Total Earnings	*Total Receipts*	*Excess of Receipts over Earnings*
State Highway Systems	$ 97,346,000	$136,480,000	$ + 39,134,000
County and second-class township roads	5,615,000	14,525,000	+ 8,910,000
Borough, city and first-class township roads	53,044,000	5,000,000	- 48,044,000
Total	$156,005,000	$156,005,000	

power of any highway system. In this instance, operating costs are assumed to be those items paid for out of current revenue - consisting mainly of maintenance, construction and major equipment expenditures. They do not include either highway debt service charges or money spent out of bond funds. In Table VIII-14 a comparison has been made between road costs, road earnings and Motor License Fund and Liquid Fuels Tax Funds receipts on all the major systems. The roads of boroughs, cities and first-class townships were the only group whose earnings covered expenditures. Income generated by the State highways as a whole was high but the unearned balance of costs was still substantial.

Comparing receipts from vehicle taxes against total highway expenditures indicates that no system paid all of its costs out of its receipts from current highway-user income. In the case of the State, the difference was made up from an accummulated cash surplus. The local systems drew upon other revenue sources, principally property taxes, to finance the remainder of their expenditures.

It also is worth noting that if the State Systems are further broken down into their rural and urban parts, it becomes apparent that the urban portions can pay their way.

CONCLUSION ON ROAD EARNINGS

A comparison of operating costs and road earnings only serves to emphasize the self-supporting nature of all urban streets. While this type of road is generally costly to build and expensive to maintain, the resultant revenue from vehicle travel seems to justify the conclusion that such money is well spent.

It does not follow, however, that expenditures on rural roads should be curtailed because of their inability to meet operating costs. Urban centers are dependent on surrounding rural highways. The rural roads also act as feeder lines into and out of urban centers and so are an important addition to locally generated traffic. As a practical matter, it is thus not possible to separate the parts from the whole and a State financial policy thus should always look toward the development of an integrated system. Also, because of this, there will probably never be a period of time when all of the income from one system should be turned back to pay all the operating costs of that system.

A comparison of road earnings and needs serves to stress the importance of a balanced program and the desirability of adequate development of both State and local urban streets if motor vehicle tax income is to be kept at a high level.

Financing County Roads

COUNTY FINANCES

Under Act of May 31, 1911, P.L. 468, counties and townships jointly, or separately, were allowed to apply for State aid for the improvement and maintenance of any road within their areas not a State highway. Generally, the State assumed 50 percent of the costs. The Act further made it lawful for any township or county to incur indebtedness for payment or maintenance undertaken under the Act's provisions.

Relying upon the availability of State aid under this Act, borrowing by counties to finance their share of improvements reached a peak by the mid 1920's. Some counties, however, consistently refused to apply for State aid, preferring to spend their own money free of direction imposed by the State when it supplied funds.

In 1931, State appropriations for State aid were discontinued and the section of the 1911 law permitting such appropriations was repealed in 1945.

One-half cent rebate. In 1921, an act of the legislature further provided for a return to the counties of one-half cent out of the one-cent per gallon tax on gasoline then in effect. Proceeds of this return could be used for county road construction and maintenance, payment of property damage and interest charges on highway debt. This became a means of relieving the county highway expense burden. Relief further was broadened in 1931 by permitting the State grant to be applied against highway debt principal as well as interest.

Road transfers. Financial assistance to the counties has also included the transfer of county highways into the State Highway Systems. This

Table VIII-14

COMPARISON OF ROAD EARNINGS - RECEIPTS FROM THE MOTOR LICENSE FUND AND THE LIQUID FUELS TAX FUND AND EXPENDITURES BY MAJOR SYSTEMS

1948

	Road Earnings	*Receipts from the Motor License Fund and Liquid Fuels Tax Fund*	*Total Highway Expenditures*	*Difference between Earnings and Expenditures*	*Difference between Receipts and Expenditures*
State Highway Systems	$ 97,346,000	$136,480,000	$152,565,000[a]	$ -55,219,000	$ -16,085,000
County and second-class township roads	5,615,000	14,525,000	19,473,000[b]	-13,858,000	- 4,948,000
Borough, city and first-class township roads	53,044,000	5,000,000	40,162,000[c]	+12,882,000	-35,162,000
Total	$156,005,000	$156,005,000	$212,200,000	$ - 56,195,000	$ -56,195,000

[a] State highway expenditures include administrative expense plus all other operating expenses, except aid to local government.

[b] County expenditures exclude highway debt service.

[c] Local government expenditures based on State and local financial reports in the Department of Internal Affairs.

action took from the counties the burden of highway operation. However, in those cases where counties had contracted bonded debt, they retained this obligation despite the fact that the road directly associated with a bond issue had been transferred to the responsibility of the State. Consequently, many counties today are paying for highways now included in the State Highway Systems.

WHAT IS THE STATE'S OBLIGATION TO THE COUNTIES FOR HIGHWAY DEBT?

County borrowing dropped drastically after the State-aid program was discontinued in 1931. Only Allegheny County and seven others contracted any highway debt in the period of 1933 to 1948. The total of issues undertaken by the group of seven counties was $1,665,000 with $1,032,000 outstanding at the end of 1948. Allegheny County debt, however, increased by $37,718,000. Also in 1931, most of the county road mileage was transferred to State ownership under the Pinchot road program. County responsibility was thereby considerably reduced and generally confined to the operation of bridges.

A sizeable portion of all county borrowing thus appears to have been created by the stimulus of the old State-aid program which, in turn, built up a road system now almost entirely under State ownership. Even when county needs had been lessened, however, the State continued the one-half cent grant to the counties and in 1931 further allowed it to be used for debt service. Consequently, the State seems to have recognized an obligation to help the counties with their highway debt by maintaining county grants at a high level and by permitting this money to be used for interest charges and the payment of principal.

There is, however, a marked lack of balance between the allocations which the counties now receive from the Liquid Fuels Tax Fund and their debt service needs. This situation is shown in Table VIII-15.

Table VIII-15 shows not only the extreme irregularity in the amounts of outstanding county borrowing but also the fact than many units now have no highway debt. This irregularity is due primarily to differing financial policies of individual counties in past years. Counties which cooperated more fully in the State-aid program contracted more debt than others. Some counties were able to use a pay-as-you-go program, while those with more limited resources were unable to do so. While county borrowing virtually stopped in 1932, Allegheny County has continuously borrowed money in large amounts to sustain its highway program.

There are other difficulties with the present system of county debt repayment. For one thing, the State has never officially defined the scope of its obligation. Thus the counties could, if they so desired, revive a program of highway construction based upon borrowing with the assumption that the continuance of the one-half cent grant would carry any debt service charges. .No other unit of government is allowed to use State grants for highway debt service.

Thus there exists today a situation in which the county highway debt appears to be an undefined obligation of the State. The inconsistent financial policies of the individual counties during and subsequent to the State-aid program make it difficult to decide what treatment the State should give to the counties' debt. Nevertheless, this complex problem ought to be resolved into some definite plan.

The Commission feels that historically and morally the State is bound to continue a policy of helping the counties pay off their highway debt. It further believes that such a program should be based on existing borrowing even though this may discriminate against those counties which adopted conservative fiscal policies. The only alternative would be to inititate a study of the individual counties and arrive at some arbitrary decision as to what would be an equitable repayment plan in each case. But this idea violates the desire of the Commission to find a method which will be simple, easily understood and free from administrative judgment.

WHAT THE COUNTIES OWE

Assuming the State is obligated to make some repayment of county highway debt, it is important to make a careful analysis of all such county borrowing requirements.

At the end of 1949, the counties, exclusive of Philadelphia and Allegheny Counties, needed

Table VIII-15

ESTIMATED COUNTY HIGHWAY DEBT SERVICE REQUIREMENTS DECEMBER 31, 1949 - COMPARED WITH PRESENT COUNTY ALLOCATIONS

(Figures do not add because of rounding)

County	*Amount Needed to Service Highway Debt*	*Percent of County Total*	*Present County Grants by Percent*
Adams	$ 21,025	.02	.59
Allegheny	71,702,856	79.31	13.98
Beaver	738,028	.82	1.40
Bedford	80,440	.09	.49
Berks	1,590,403	1.76	3.04
Butler	493,446	.55	1.08
Cambria	1,403,109	1.55	1.61
Carbon	1,035,017	1.14	.55
Chester	17,438	.02	2.05
Columbia	71,092	.08	.59
Crawford	32,840	.04	.83
Cumberland	142,366	.16	1.00
Dauphin	41,633	.05	2.10
Delaware	679,166	.75	3.27
Erie	120,000	.13	2.42
Elk	8,628	.01	.31
Fayette	143,790	.16	1.71
Indiana	939,593	1.04	.77
Jefferson	180,270	.20	.52
Lackawanna	953,448	1.05	2.57
Lebanon	209,605	.23	.80
Lehigh	1,309,379	1.45	2.30
Luzerne	828,300	.92	3.54
Lycoming	266,429	.29	1.23
Mercer	255,908	.28	1.13
Mifflin	54,139	.06	.47
Monroe	59,146	.07	.66
Northampton	2,683,536	2.97	1.88
Northumberland	138,163	.15	1.26
Schuylkill	621,744	.69	2.01
Snyder	34,768	.04	.24
Somerset	524,508	.58	.72
Susquehanna	389,255	.43	.33
Venango	137,335	.15	.91
Washington	1,952,538	2.16	1.93
Westmoreland	95,250	.11	2.79
Wyoming	8,175	.01	.31
York	442,128	.49	2.14
Total	$90,404,894	100.00	65.53[a]

[a] The remaining 34.47 percent of county grants is distributed among the 21 counties which have no highway debt.

$18,682,476 to retire their existing highway debt. Highway debt service requirements in Allegheny County were approximately $72,000,000. But it should be pointed out that Allegheny County received a grant of about $1,331,000 in 1948, while spending approximately $6,500,000 for highway debt service requirements alone. Much of it was due to borrowings after 1932. This suggests that a considerable part of the current highway debt in Allegheny County was incurred without the incentives provided by the State-aid program and without the definite expectation of having it paid out of State grants. In the case of Allegheny County, there is no precise method of segregating the highway debt issued by this unit primarily for its own benefit and the debt issued primarily for the benefit of the State.

A PROPOSED SOLUTION

The Commission believes that the State has established a responsibility to help the counties repay their highway debt insofar as it was incurred as part of the former State-aid program and assuming that the one-half cent grant would continue to be available and could be used for debt service. It recommends that the State accept responsibility for this debt rather than attempt to limit the amount on the basis of individual county financial history. The Commission believes that any State obligation to help repay county debt should be ended within a reasonable period of time.

It is proposed that the State undertake to repay the counties' outstanding highway debt, with the exception of Philadelphia and Allegheny Counties. Since it is not possible to define the State's obligation to Philadelphia and Allegheny Counties, it is recommended that these counties be repaid on the basis of $3.69 per capita, which is the average debt payment the State would make to all the other counties on the basis of debt outstanding at the end of 1949. This would result in granting a total of $7,126,622 to Philadelphia and $5,208,579 to Allegheny during the 12-year period. On this basis the total amount which the State would have to provide to repay county debt would be $12,335,201 for these two counties, and $18,682,476 for all the others or a total of $31,017,677.

The irregularity of county debt, however, makes it impractical to provide any direct grant to the counties on a uniform basis as is required by the Constitution. Furthermore, the Constitution prohibits the State from directly assuming the debt of any subdivision.

By making use of the State Highway and Bridge Authority, the State can repay county highway debt without assuming it as a direct obligation and without being concerned by any lack of uniformity in payment. This Commission, therefore, proposes that the State turn over to the Authority from the Motor License Fund an amount each year sufficient to pay off the State's obligation to the counties. This program would also require the Authority to lease county roads and bridges, with the terms and length of the lease in each case corresponding to the amount required to service individual county highway debt.

Conclusion. The solution proposed above will involve a total payment of $31,017,677. However, at the end of 12 years, withdrawals from the Motor License Fund would cease and additional money would then be available for other purposes.

PAYING FOR THE ROADS

Commission engineering studies show that the counties will require $49,778,000 for a satisfactory highway program over the next 12 years. This total includes all road and bridge needs and is based on the counties' present ownership of these facilities. Table VIII-16 shows how this program can be carried out.

Revenues necessary to finance this work do not require any new county borrowing nor do they necessitate any increase in total local revenue. The figure of $24,700,000 is an amount which is representative of the total annual highway expenditures of all counties since the end of the war. This estimate assumes that county income will be retained at its present level, and that highway expenditures will receive the same proportion of this revenue which they have received in the past. Proposed State grants in the amount of $30,000,000 constitute the additional money needed to carry the total cost. Thus the current level of local tax contributions plus State aid will support the counties' share of the statewide program.

Table VIII-16

ESTIMATED REVENUE AND EXPENDITURES FOR COUNTIES DURING NEXT 12 YEARS

Estimated revenues:	
Local highway revenue	$24,700,000
State aid	30,000,000
Total	$54,700,000
Estimated expenditures:	
Construction program	$26,998,000
Other highway expenses	22,780,000
Total	$49,778,000
Balance	+ $ 4,922,000

The $26,998,000 for improvements consists of $10,093,000 for Trunkline Highways, Intercommunity Roads, and Community Service Roads and bridges while $16,905,000 is for Local Roads. Out of the $16,905,000, only $250,000 is earmarked for road improvement while $16,655,000 is for bridges. It should be noted that if the counties returned all of their present mileage of Trunkline Highways, Intercommunity Roads and Community Service Roads to the State, they would save an estimated $8,653,000 needed for construction and an estimated $9,700,000 for maintenance - or a total of $17,653,000. However, their State grants, which would be based on bridge area, would continue to be the same.

In accordance with the previously discussed policy of setting aside 20 percent of all State grants to local subdivisions for construction work, the total county grant would be divided into $6,000,000 for construction and $24,000,000 for maintenance of roads and bridges during the 12-year period. When matched on a 50-50 basis, this construction would require another $6,000,000 of local revenue and would furnish a total improvement fund of $12,000,000. It can be observed from Table VIII-16 that this amount represents less than 50 percent of construction needs and, therefore, there is ample freedom at the county level in the expenditure of construction funds.

Table VIII-17

PROPOSED STATE GRANTS TO CITIES, BOROUGHS AND TOWNSHIPS 12-YEAR TOTALS

	Maintenance	*Construction*	*Total*
Cities	$ 38,592,000	$ 9,648,000	$ 48,240,000
Boroughs	25,488,000	6,372,000	31,860,000
First-class townships	5,760,000	1,440,000	7,200,000
Second-class townships	74,160,000	18,540,000	92,700,000
Total	$144,000,000	$36,000,000	$180,000,000

As mentioned previously, the present system of allocating one-half cent of the gas tax to the counties is an unsatisfactory criterion of their needs. Not only are many of the counties able to pay all of their highway expenses and debt service out of State aid, but many of them pass on an excess of State money to local subdivisions. In 1948, a total of $1,855,899 - or 22 percent - of the State funds given to the counties was further passed on to other units of government. This type of allocation by the counties will no longer be either feasible or desirable under the program proposed by the Commission, since State aid will now provide only for actual county needs.

CONCLUSIONS ON COUNTY FINANCES

1. The proposed program of State aid plus present local tax contributions is sufficient to finance the county highway program. The elimination of the one-half cent gas tax allocation will not, therefore, impose any financial hardships.
2. While as a general policy the State should not be responsible for the debt of any political subdivision, some method should be devised to define and end the State's implied obligation to repay any county highway debt.
3. Because of differences in financial policy on the part of individual counties, county highway debt is scattered irregularly throughout the individual counties. This situation plus the fact that the State cannot directly sssume county highway debt makes it necessary to make use of some other agency, such as the State Highway and Bridge Authority, for any logical plan of debt repayment.

RECOMMENDATIONS ON COUNTY FINANCES

The Commission recommends that:

1. An arrangement be made to repay the counties through the State Highway and Bridge Authority with the understanding that at the end of the 12-year program the State's responsibility to liquidate any county highway debt will end.
2. The State's responsibility to the counties for highway debt be defined and limited. And further, that on the basis of debt outstanding at the end of 1949, a total of $31,017,677 be set aside over the next 12 years and that the existing highway debt of all counties be repaid in full, except Allegheny and Philadelphia Counties, which should be repaid on a per capita basis as discussed above.
3. The power of the counties to apportion State highway grants to local subdivisions be repealed.

Financing Township, City and Borough Roads

The amount of State grants to townships, cities and boroughs is derived from an application of the Commission's proposed formula to the amount set aside from State Motor License Fund revenues for this purpose. In Table VIII-17 a calculation is made of the approximate distribution which would result. Total aid to each group is further broken down into the amounts which would be available for maintenance and earmarked for construction.

Ownership of Local Roads is discussed in detail in Chapter VI. The arrangement considered in the following discussion is that which would exist if no optional transfers of Local Roads are made.

REVENUES VS. EXPENDITURES

Table VIII-18 shows the estimated amounts of local revenue and State aid as opposed to proposed expenditures. It demonstrates that adequate revenue will be available to meet Local Road needs of the next 12 years.

Local highway income, in all cases, assumes no increase in the overall level of local taxation and no change in the amounts now budgeted for highway work. Thus most units need only to maintain their present level of effort in order to carry out their share of the total program. The principal exceptions to this general rule would be those few units which are not now levying any local taxes and which will need to do so in order to match State construction grants.

Table VIII-18

PROPOSED FINANCING OF 12-YEAR HIGHWAY PROGRAM FOR CITIES, BOROUGHS AND TOWNSHIPS

	Cities[a]	*Boroughs*	*First-Class Townships*	*Second-Class Townships*	*Total*
Estimated revenues					
Local highway revenue	$235,300,000	$126,000,000	$35,700,000	$105,400,000	$502,400,000
State aid	48,240,000	31,860,000	7,200,000	92,700,000	180,000,000
Total	$283,540,000	$157,860,000	$42,900,000	$198,100,000	$682,400,000
Proposed expenditures					
Construction program	$123,048,000	$ 34,000,000	$ 7,800,000	$ 63,137,000	$227,985,000
Other highway expenses	158,400,000	119,500,000	35,600,000	132,144,000	445,644,000
Total	$281,448,000	$153,500,000	$43,400,000	$195,281,000	$673,629,000
Balance	$ +2,092,000	$ +4,360,000	$ -,500,000	$ +2,819,000	$ +8,771,000

[a] Philadelphia, Scranton and Pittsburgh rely upon bond funds to finance highway improvements. Local highway revenue thus contains a conservative estimate of amounts earmarked for this operation in these three cities. Also includes improvement costs on Trunkline Highways, Intercommunity Roads and Community Service Roads to be retained by Philadelphia.

EFFECT OF STATE CONSTRUCTION GRANTS

State construction grants when matched with local funds represent only part of the recommended improvement costs. In the second-class townships, State grants plus local funds amount to 59 percent of the total improvement needs. In first-class townships they amount to 37 percent, in boroughs 37 percent and in cities 16 percent. Matching funds will not, therefore, tie up all local construction money. It will leave considerable discretion in the hands of. local government. On the other hand, this requirement will stimulate construction and it does offer an assurance that State money will finance a substantial amount of road improvement at the local level over the next 12 years.

SUMMARY

In Chapter IV, it was pointed out that the total cost of improving Local Roads over the next 12 years would be $252,650,000. Financial responsibility for this amount would be distributed as is shown below in Table VIII-19.

Thus where the Local Road System is a local responsibility, there is no need to increase local taxes or divert more revenue to highway purposes. State aid plus present local effort should be sufficient to pay all program costs.

The provision for Local Roads under county and State ownership has already been discussed and, as previously pointed out, these Local Roads can also be operated at the current levels of income.

Table VIII-19

FINANCIAL RESPONSIBILITY FOR LOCAL ROADS

State	$ 8,420,000
Counties	16,910,000
Boroughs	34,000,000
Cities	122,380,000
First-class townships	7,800,000
Second-class townships	63,140,000
Total	$252,650,000

IX
LEGISLATIVE MEASURES PROPOSED

The following summary lists only those recommendations of the Commission which will require either new legislation or revision of existing laws. Other parts of the 12-year program can be put into effect through administrative action by the appropriate state and local authorities and, consequently, are not included here.

Chapter II

Roads should be classified into four systems - Trunkline, Intercommunity, Community Service and Local. The Secretary of Highways should establish these classifications in cooperation with other units of government.

Chapter IV

Present roadway width restrictions need to be liberalized in order to provide adequate width for multiple-lane highways, by permitting the Department of Highways to acquire whatever width is necessary for a center strip, in addition to the present 120 feet for the roadway.

Local roads should be further classified into Local Service Roads and Property Access Roads.

Chapter VI

The ownership of roads should be as follows:

1. The State should be responsible for all of the Trunkline, Intercommunity and Community Service Systems except for certain mileage in the City of Philadelphia and where counties elect to retain their present facilities.
2. The local governments should be responsible for Local Roads except that second-class townships should not be required to accept State-owned Local Roads which cannot be exchanged for an equal mileage of Community Service Roads.

The administrative practices of all units of local government except cities should be changed to provide the following:

1. All Local Road mileage shall be administered as a unit.
2. Any person appointed as an administrative or managing head of any local highway organization should be required to have technical training or practical highway experience.

Highway Work Units should be established to provide an opportunity for the townships and boroughs to become more effective agencies of road administration. Such units should be organized on a voluntary basis and in accordance with standards recommended by the Commission. For administrative purposes, each Highway Work Unit should be considered as one unit.

The Department of Highways should withhold State grants whenever, in its judgment, any unit of local government fails to appoint qualified personnel to manage its roads or whenever it fails to build or properly maintain Local Roads built or improved with State money.

Uniform limitations should apply for all political subdivisions with regard to the purposes for which State grants may be spent and the degree of State supervision should be uniform. Consequently, the right of the counties to spend State grants on highway debt service and land damages should be revoked. (Legal action is not needed to put into effect the Commission's plan for repayment of County highway debt through the State Highway and Bridge Authority.) Also the State should be given power to supervise the maintenance of any county highway facility built or improved with State money.

Chapter VIII

State highway grants to cities, boroughs and townships should be increased to $15,000,000 per year. Such funds should be distributed to all units or a group on the basis of 50 percent for their relative shares of population and 50 percent for their relative shares of Local Road mileage.

Counties should be granted $2,500,000 per year for highway purposes. Such funds should be distributed on the basis of their relative shares of the square feet of floor area in all county bridges.

When the State surrenders Local Road mileage to the second-class townships which cannot be exchanged for an equal mileage of Community Service or other roads, then the State should give a direct mileage subsidy which is the equivalent of the savings involved - this grant to be in addition to any others.

Twenty percent of all State grants for highway purposes should be earmarked as construction aids to be made available only if:

> The local unit matches each dollar of State money with one dollar of local revenue; and
>
> The local unit can qualify as an economic Highway Work Unit.

Furthermore, all such funds should first be spent on Local Service Roads to bring them up to State standards and then on Property Access Roads. When all roads are up to State standards, then the Secretary of Highways should be empowered to authorize the unit concerned to spend all State grants on maintenance.

No subsidies should be extended to units which have no local roads or bridges. Further, the local mileage of second-class townships should be eligible for only one form of subsidy either as part of a population and mileage formula or on a direct mileage grant from the State where a road is transferred.

The Department of Highways should assume responsibility for the administration of all State highway grants including payments to counties.

The Liquid Fuels Tax Fund should be abolished and the one-half cent of revenue now set aside for this fund should be placed in the Motor License Fund.

PROPOSED IMPROVEMENTS
TRUNKLINE HIGHWAYS

by Counties

Appendix I

PROPOSED IMPROVEMENTS
TRUNKLINE HIGHWAYS

ADAMS COUNTY

U.S. ROUTE 30
Between Franklin County Line and U.S. Route 15 in Gettysburg

New Construction	4.3 miles	$ 766,200

U.S. ROUTE 30
Between U.S. Route 15 in Gettysburg and York County Line

Limited Reconstruction	4.6 miles	$ 185,600
New Lane Construction	3.8 miles	393,300

PA. ROUTE 34
Between Cumberland County Line and U.S. Route 15 in Gettysburg

Limited Reconstruction	7.4 miles	$ 138,200
Limited Reconstruction	1.0 mile	61,100
New Lane Construction	.1 mile	15,200

U.S. ROUTE 15
Between U.S. Route 30 in Gettysburg at intersection of Chambersburg and York Streets and York County Line

New Lane Construction	.1 mile	$ 17,300
Limited Reconstruction	13.3 miles	477,300
New Lane Construction	2.9 miles	235,000

U.S. ROUTE 15
Between U.S. Route 30 in Gettysburg at intersection of Chambersburg and York Streets and Maryland State Line

Limited Reconstruction	.8 mile	$ 31,500
New Construction	6.3 miles	864,600

U.S. ROUTE 140
Between U.S. Route 15 in Gettysburg and Maryland State Line

Limited Reconstruction	.2 mile	$ 7,500
New Construction	.3 mile	52,600
Limited Reconstruction	9.0 miles	275,900
New Construction	1.1 miles	162,100
Limited Reconstruction	1.5 miles	76,500

PA. ROUTE 194
Between U.S. Route 140 and York County Line

New Lane Construction	.8 mile	$ 45,500
New Construction	5.2 miles	565,000

PA. ROUTE 16
Between Maryland State Line and Franklin County Line

New Construction	4.7 miles	$ 463,500

PA. ROUTE 94
Between Cumberland County Line and York County Line

Limited Reconstruction	2.0 miles	$ 82,000
Limited Reconstruction	13.6 miles	620,300

ALLEGHENY COUNTY

U.S. ROUTE 19
Between Washington County Line and Pa. Route 51 at Liberty Tunnels

New Lane Construction	2.3 miles	$ 452,000
Limited Reconstruction	1.0 mile	69,300

U.S. ROUTE 19
Between Butler County Line and Pa. Route 8 in Pittsburgh

New Construction	3.9 miles	$ 1,815,000
New Construction	2.6 miles	1,276,000
Limited Reconstruction	.2 mile	37,000

U.S. ROUTE 30
Between Westmoreland County Line and Pa. Route 80 in Pittsburgh at the intersection of Penn and Wilkins Avenues

Limited Reconstruction	2.1 miles	$ 75,000
New Lane Construction	.3 mile	33,000
Limited Reconstruction	.4 mile	62,000
Limited Reconstruction	.9 mile	165,000
Limited Reconstruction	1.6 miles	228,000
New Construction	.4 mile	65,000
Limited Reconstruction	1.2 miles	51,800

PENN-LINCOLN PARKWAY
Between western junction with U.S. Route 22 and eastern junction with U.S. Route 22

New Construction	14.6 miles	$81,498,000

U.S. ROUTE 30
Between Beaver County Line and Penn-Lincoln Parkway

Limited Reconstruction	2.2 miles	$ 114,000
New Construction	5.6 miles	2,010,000

U.S. ROUTE 22
Between Washington County Line and Penn-Lincoln Parkway

New Construction	6.5 miles	$ 2,336,000
New Lane Construction	1.0 mile	199,000

U.S. ROUTE 22
Between Westmoreland County Line and Penn-Lincoln Parkway

New Lane Construction	6.6 miles	$ 1,253,000

PA. ROUTE 906
Between Pa. Route 31 and Westmoreland County Line

New Construction	.1 mile	$ 18,700

PA. ROUTE 51
Between Westmoreland County Line and Beaver County Line

New Construction	2.2 miles	$ 626,000
New Construction	1.4 miles	913,000
New Lane Construction	3.2 miles	1,007,000
Limited Reconstruction	.3 mile	45,000

New Lane Construction	1.3 miles	268,000
Limited Reconstruction	3.2 miles	150,000
New Construction	.8 mile	201,000
Limited Reconstruction	1.2 miles	39,000
New Lane Construction	1.6 miles	$ 285,000
Limited Reconstruction	3.3 miles	110,000

PA. ROUTE 519

Between Washington County Line and Penn-Lincoln Parkway

New Lane Construction	2.5 miles	$ 718,000

PA. ROUTE 88

Between Washington County Line and Pa. Route 51

Limited Reconstruction	3.4 miles	$ 217,000
New Construction	2.3 miles	1,317,000

PA. ROUTE 88

Between Beaver County Line and Pa. Route 51 at West End Bridge

Limited Reconstruction	3.2 miles	$ 608,000
New Construction	3.0 miles	2,065,000
Limited Reconstruction	4.9 miles	792,600
Limited Reconstruction	1.7 miles	27,600

PA. ROUTE 31

Between Washington County Line at East Monongahela and Westmoreland County Line

New Construction	4.7 miles	$ 1,219,000

PA. ROUTE 837

Between Pa. Route 51 in West Elizabeth and Point Bridge in Pittsburgh

New Construction	1.7 miles	$ 504,000
New Construction	5.4 miles	1,247,000
Limited Reconstruction	1.0 mile	42,000
New Lane Construction	2.0 miles	210,000
Limited Reconstruction	1.0 mile	104,000
Limited Reconstruction	.2 mile	22,900
New Lane Construction	.2 mile	26,000
Limited Reconstruction	.4 mile	57,000
New Lane Construction	.4 mile	80,000
New Construction	2.1 miles	823,000
New Lane Construction	.8 mile	215,000
Limited Reconstruction	1.9 miles	105,000
New Construction	.8 mile	177,000

PA. ROUTE 8

Between Butler County Line and Etna Borough Line

New Lane Construction	12.5 miles	$ 2,308,000
Limited Reconstruction	.3 mile	43,000

PA. ROUTE 80 RELOCATED

Between Westmoreland County Line and U.S. Route 22

New Construction	4.4 miles	$ 997,000

PA. ROUTE 28

Between Butler County Line and Pa. Route 88 in Pittsburgh, at the intersection of Chateau Street and Western Avenue, including a connecting link with Pa. Route 8 at the northern Etna Borough Line

New Lane Construction	5.2 miles	$ 697,000
New Lane Construction	.7 mile	63,000
Limited Reconstruction	.8 mile	54,000
New Lane Construction	6.7 miles	847,000
New Construction	7.8 miles	9,146,000
Limited Reconstruction	1.6 miles	150,000

OHIO RIVER BOULEVARD

In Pittsburgh, between Pa. Route 88, at the intersection of California and Marshall Avenues, and Penn-Lincoln Parkway

New Construction	2.0 miles	$10,000,000

PA. ROUTE 80

In Pittsburgh between U.S. Route 30, at the intersection of Wilkins and Penn Avenues, and Pa. Route 88 at Point Bridge

Limited Reconstruction	.1 mile	$ 6,600

U.S. ROUTE 19 EXTENDED

In Pittsburgh, between Pa. Route 8, at the intersection of East and Ohio Streets, and new local road connecting to Liberty Tunnels

New Construction	.5 mile	$10,000,000

ARMSTRONG COUNTY

PA. ROUTE 268

Between Butler County Line at Parker City north to Butler County Line

Limited Reconstruction	.8 mile	$ 62,300

PA. ROUTE 268

Between Butler County Line and U.S. Route 422

Limited Reconstruction	7.7 miles	$ 183,500

U.S. ROUTE 422

Between Butler County Line and Pa. Route 66 in Kittanning

New Construction	9.2 miles	$ 2,156,000

U.S. ROUTE 422

Between Pa. Route 66 in Kittanning and Indiana County Line

Limited Reconstruction	10.6 miles	$ 522,000

PA. ROUTES 28 and 66

Between Clarion County Line and U.S. Route 422

New Lane Construction	.4 mile	$ 68,800
Limited Reconstruction	12.3 miles	778,900
New Construction	1.6 miles	442,000

PA. ROUTE 66

Between U.S. Route 422 in Kittanning and Westmoreland County Line

Limited Reconstruction	5.5 miles	$ 418,000
New Construction	2.9 miles	1,017,500

PA. ROUTE 28

Between U.S. Route 422 and Butler County Line

Limited Reconstruction	12.7 miles	$ 801,300

PA. ROUTE 85

Between Pa. Route 28 (and also Pa. Route 66) and Indiana County Line

Limited Reconstruction	15.8 miles	$ 710,700

BEAVER COUNTY

PA. ROUTE 165
Between Ohio State Line and Pa. Route 51

New Lane Construction	1.9 miles	$ 165,000

PA. ROUTE 51
Between Ohio State Line and Pa. Route 68 in Bridgewater

New Construction	.9 mile	$ 122,900
New Construction	8.6 miles	3,300,000
New Lane Construction	5.6 miles	611,000
New Construction	1.0 mile	213,000

PA. ROUTE 88
Between Pa. Route 288 and Pa. Route 18 in New Brighton

Limited Reconstruction	2.6 miles	$ 118,800
New Construction	5.6 miles	1,140,000

PA. ROUTE 288
Between Lawrence County Line at Elwood City and Butler County Line

New Construction	1.5 miles	$ 196,500
New Construction	1.4 miles	199,000

PA. ROUTE 68
Between Butler County Line and Pa. Route 88

Limited Reconstruction	10.3 miles	$ 367,000

PA. ROUTE 68
Between Pa. Route 18 in Rochester and Ohio State Line

New Construction	7.9 miles	$ 1,800,800
New Construction	2.9 miles	703,600

PA. ROUTE 18
Between Lawrence County Line and Pa. Route 68 in Rochester

New Construction	4.8 miles	$ 1,198,000
Limited Reconstruction	.4 mile	25,500
Limited Reconstruction	.2 mile	10,100
New Construction	2.1 miles	1,422,600

PA. ROUTES 51 and 18
Between Pa. Route 88 and Washington County Line

New Construction	4.7 miles	$ 1,348,000
Limited Reconstruction	2.7 miles	128,000

U.S. ROUTE 30
Between West Virginia State Line and Allegheny County Line

New Construction	2.3 miles	$ 656,000
Limited Reconstruction	9.8 miles	350,000

PA. ROUTE 251
Between Ohio State Line and Pa. Route 51

Limited Reconstruction	1.9 miles	$ 93,000

PA. ROUTE 88
Between Pa. Route 68 in Rochester and Allegheny County Line

Limited Reconstruction	2.4 miles	$ 296,100
New Construction	1.3 miles	335,000
Limited Reconstruction	1.5 miles	162,200

PA. ROUTE 930
Between Pa. Route 51 (and also Pa. Route 18) and Allegheny County Line

Limited Reconstruction	.8 mile	$ 44,400
New Lane Construction	3.1 miles	740,500
Limited Reconstruction	.2 mile	7,700
New Construction	1.6 miles	513,000

BEDFORD COUNTY

U.S. ROUTE 220
Between Blair County Line and Maryland State Line

Limited Reconstruction	6.8 miles	$ 385,900
New Construction	1.4 miles	215,700
Limited Reconstruction	3.1 miles	142,700
Limited Reconstruction	3.3 miles	119,900
New Construction	2.4 miles	459,000
Limited Reconstruction	.1 mile	4,900
New Construction	1.0 mile	126,000
Limited Reconstruction	23.0 miles	1,053,500

PA. ROUTE 31
Between Somerset County Line and U.S. Route 30

New Construction	15.3 miles	$ 1,432,900

PA. ROUTE 56
Between Somerset County Line and U.S. Route 220

New Lane Construction	1.7 miles	$ 243,500
New Construction	1.3 miles	250,900
New Lane Construction	.9 mile	116,600
Limited Reconstruction	10.1 miles	331,900

U.S. ROUTE 30
Between Somerset County Line and Fulton County Line

New Construction	5.0 miles	$ 544,000
New Construction	.4 mile	74,800
Limited Reconstruction	1.1 miles	30,400
New Construction	2.7 miles	385,600
New Construction	.7 mile	80,600
New Construction	9.9 miles	1,244,900

PA. ROUTE 126
Between Fulton County Line and U.S. Route 30

New Construction	4.2 miles	$ 789,000

PA. ROUTE 26
Between U.S. Route 30 and Huntingdon County Line

New Construction	1.1 miles	$ 92,900
Limited Reconstruction	5.4 miles	223,800

BERKS COUNTY

U.S. ROUTE 22
Between Lebanon County Line and Lehigh County Line

New Construction	26.3 miles	$10,239,800

PA. ROUTE 83
Between Schuylkill County Line and the Proposed By-Pass north of Reading

Limited Reconstruction	6.2 miles	$ 277,400
New Construction	10.1 miles	1,413,200

PROPOSED BY-PASS NORTH of READING
Between U.S. Route 222 at Lincoln Park and U.S. Route 222 at Hyde Villa

New Construction	6.1 miles	$ 1,463,200

PA. ROUTE 483
Between Pa. Route 83 and U.S. Route 422.

Limited Reconstruction	6.5 miles	$ 81,000

PA. ROUTE 73
Between Lancaster County Line and U.S. Route 222

Limited Reconstruction	8.3 miles	$ 306,500

U.S. ROUTE 422
Between Lebanon County Line and U.S. Route 222 (and also U.S. Route 122) in Reading

Limited Reconstruction	.3 mile	$ 29,100

U.S. ROUTE 422
Between U.S. Route 222 (and also U.S. Route 122) in Reading and Montgomery County Line

Limited Reconstruction	.6 mile	$ 103,300
Limited Reconstruction	.8 mile	40,700

U.S. ROUTE 122
Between Lancaster County Line and U.S. Route 222

New Construction	3.1 miles	$ 380,400
Limited Reconstruction	1.0 mile	63,800

U.S. ROUTE 222
Between Lancaster County Line and U.S. Route 122

Limited Reconstruction	2.8 miles	$ 163,400

U.S. ROUTES 122 and 222
Between junction of U.S. Routes 122 and 222 near South Fairview and their separation in Reading

Limited Reconstruction	.5 mile	$ 27,500

LEG. ROUTE 148
Between U.S. Route 222 (and also U.S. Route 122) and U.S. Route 422 in Reading

Limited Reconstruction	1.3 miles	$ 48,400

PROPOSED BY-PASS WEST of READING
Between U.S. Route 422, through West Reading, and Berkshire Heights

New Construction	7.3 miles	$ 2,432,400

U.S. ROUTE 122
Between separation of U.S. Routes 122 and 222 and Schuylkill County Line

New Construction	1.5 miles	$ 1,222,100
New Construction	2.5 miles	1,745,700

U.S. ROUTE 222
Between separation of U.S. Routes 122 and 222 and Lehigh County Line

New Lane Construction	19.6 miles	$ 2,812,400

PA. ROUTE 100
Between Montgomery County Line and Pa. Route 29

Limited Reconstruction	.9 mile	$ 55,000
New Construction	11.6 miles	1,763,800

PA. ROUTE 29
Between Montgomery County Line and Lehigh County Line

New Construction	2.2 miles	$ 310,400

BLAIR COUNTY

U.S. ROUTE 220
Between Centre County Line and U.S. Route 22

New Construction	.5 mile	$ 118,500
Limited Reconstruction	4.3 miles	219,500
New Lane Construction	6.8 miles	1,294,200
Limited Reconstruction	.6 mile	24,000

U.S. ROUTE 220
Between U.S. Route 22 and Bedford County Line

Limited Reconstruction	2.0 miles	$ 209,000
New Construction	9.4 miles	2,740,100

U.S. ROUTE 22
Between Cambria County Line and Huntingdon County Line

Limited Reconstruction	2.4 miles	$ 143,300
New Lane Construction	4.4 miles	568,400
Limited Reconstruction	1.2 miles	47,800
New Construction	1.5 miles	359,300
Limited Reconstruction	12.1 miles	479,000
New Lane Construction	1.8 miles	62,200
New Construction	.4 mile	99,300

BRADFORD COUNTY

PA. ROUTE 14
Between New York State Line and U.S. Route 6

Limited Reconstruction	.5 mile	$ 27,500
New Construction	.6 mile	126,000
Limited Reconstruction	14.0 miles	740,000
Limited Reconstruction	.3 mile	18,100

U.S. ROUTE 6
Between Pa. Route 14 and U.S. Route 220 in Towanda

Limited Reconstruction	4.7 miles	$ 130,000
Limited Reconstruction	1.4 miles	46,500

U.S. ROUTES 309 and 6
Between U.S. Route 220 and Wyoming County Line

Limited Reconstruction	.7 mile	$ 22,000
Limited Reconstruction	.6 mile	21,300
Limited Reconstruction	.4 mile	14,300
New Lane Construction	2.0 miles	332,000
Limited Reconstruction	1.2 miles	38,000
Limited Reconstruction	1.1 miles	36,800
Limited Reconstruction	.5 mile	16,500
Limited Reconstruction	4.2 miles	127,000

U.S. ROUTE 106
Between U.S. Route 309 (and also U.S. Route 6) and Susquehanna County Line

New Construction	2.4 miles	$ 229,000

U.S. ROUTES 309 and 220

Between New York State Line and U.S. Route 309 (and also U.S. Route 6) in Towanda

Limited Reconstruction	.4 mile	$ 1,900
Limited Reconstruction	6.9 miles	387,300
New Construction	1.0 mile	324,000
Limited Reconstruction	.6 mile	32,300

U.S. ROUTE 220

Between U.S. Route 309 (and also U.S. Route 6) in Towanda and Sullivan County Line

Limited Reconstruction	2.1 miles	$ 67,100
New Lane Construction	1.1 miles	103,000

PA. ROUTE 414

Between Pa. Route 14 in Canton and U.S. Route 220 in Monroe

Limited Reconstruction	.9 mile	$ 21,500
Limited Reconstruction	.4 mile	10,000
Limited Reconstruction	.3 mile	6,600
Limited Reconstruction	1.5 miles	36,800
New Construction	8.6 miles	610,000

BUCKS COUNTY

U.S. ROUTE 202

Between Montgomery County Line and New Jersey State Line

New Construction	9.5 miles	$ 3,210,000
New Lane Construction	5.7 miles	855,000
New Construction	1.7 miles	980,000

U.S. ROUTE 309

Between Montgomery County Line and Lehigh County Line

New Construction	6.4 miles	$ 3,300,000
New Lane Construction	5.7 miles	1,490,000
New Construction	4.3 miles	2,260,000

U.S. ROUTE 611

Between Montgomery County Line and Northampton County Line

New Lane Construction	6.3 miles	$ 980,000
Limited Reconstruction	6.1 miles	359,000
New Construction	15.3 miles	5,392,000

U.S. ROUTE 1

Between Philadelphia Line and New Jersey State Line

Limited Reconstruction	2.3 miles	$ 180,000
New Construction	3.5 miles	1,815,000
Limited Reconstruction	3.6 miles	462,000
New Construction	.9 mile	1,210,000

U.S. ROUTE 13

Between Philadelphia Line and U.S. Route 1

New Construction	4.2 miles	$ 1,605,000
New Lane Construction	2.1 miles	435,000
New Lane Construction	2.8 miles	826,000
New Construction	3.1 miles	2,040,000

PA. ROUTES 413 and 313

Between U.S. Route 13 and U.S. Route 309

New Construction	16.8 miles	$ 3,690,000
New Construction	1.3 miles	480,000
New Construction	4.1 miles	955,000

NEW ROAD

Between Montgomery County Line and U.S. Route 1

New Construction	5.2 miles	$ 1,848,000

BUTLER COUNTY

PA. ROUTE 8

Between Venango County Line and U.S. Route 422 in Butler city at the intersection of Main and Jefferson Streets

Limited Reconstruction	3.1 miles	$ 237,000
Limited Reconstruction	11.1 miles	329,100
Limited Reconstruction	.2 mile	12,000

PA. ROUTE 8

Between U.S. Route 422 in Butler city at the intersection of Main and Jefferson Streets and Allegheny County Line

Limited Reconstruction	14.0 miles	$ 519,500

PA. ROUTE 78

Between Mercer County Line and Pa. Route 8

Limited Reconstruction	5.8 miles	$ 187,300

PA. ROUTE 19

Between Lawrence County Line and Allegheny County Line

Limited Reconstruction	3.4 miles	$ 136,300
New Lane Construction	8.8 miles	2,182,000
Limited Reconstruction	.6 mile	27,500
New Construction	8.7 miles	3,115,000

U.S. ROUTE 422

Between Lawrence County Line and Butler city at the intersection of Jefferson and Monroe Streets

New Lane Construction	1.8 miles	$ 162,000

U.S. ROUTE 422

Between Butler city at the intersection of Jefferson and Monroe Streets and Armstrong County Line

New Construction	10.8 miles	$ 2,657,000

U.S. ROUTE 422

Between East Jefferson Street and West Jefferson Street on Cunningham Street in Butler city

Limited Reconstruction	.6 mile	$ 339,000

PA. ROUTE 488

Between Lawrence County Line and Pa. Route 19

Limited Reconstruction	1.1 miles	$ 25,600

PA. ROUTE 288

Between Lawrence County Line and Pa. Route 19

Limited Reconstruction	1.0 mile	$ 48,700

PA. ROUTE 68

Between Pa. Route 268 and Butler city at the intersection of Monroe and Jefferson Streets

Limited Reconstruction	11.0 miles	$ 945,100
Limited Reconstruction	.2 mile	41,000

PA. ROUTE 356

Between Armstrong County Line and Butler city at the intersection of South Main Street and East Wayne Avenue

Limited Reconstruction	2.8 miles	$ 154,600
Limited Reconstruction	3.8 miles	248,800

PA. ROUTE 268

From Armstrong County Line, south through Bruin, and back to Armstrong County Line

Limited Reconstruction	3.1 miles	$ 136,900

PA. ROUTE 58

Between Mercer County Line and Pa. Route 8

Limited Reconstruction	1.1 miles	$ 60,500

PA. ROUTE 38

Between Venango County Line and Pa. Route 68

Limited Reconstruction	23.9 miles	$ 1,047,000

CAMBRIA COUNTY

U.S. ROUTE 22

Between Indiana County Line and Blair County Line

New Lane Construction	6.0 miles	$ 600,800
New Construction	7.2 miles	1,291,700
New Lane Construction	6.7 miles	563,600

U.S. ROUTE 219

Between Somerset County Line and U.S. Route 22 at Mundy Corner

Limited Reconstruction	1.0 mile	$ 24,600
New Construction	.2 mile	29,400
New Construction	.6 mile	101,600
Limited Reconstruction	.3 mile	102,000
Limited Reconstruction	1.2 miles	50,000
New Lane Construction	5.5 miles	580,900

U.S. ROUTE 219

Between U.S. Route 22 and Indiana County Line

Limited Reconstruction	8.0 miles	$ 251,600
Limited Reconstruction	4.7 miles	506,200

U.S. ROUTE 422

Between Indiana County Line and U.S. Route 22

Limited Reconstruction	9.6 miles	$ 203,300

PA. ROUTE 56

Between Somerset County Line and U.S. Route 219 in Johnstown

New Construction	4.0 miles	$ 1,381,700
New Construction	.5 mile	88,700

PA. ROUTE 271

Between Somerset County Line and U.S. Route 219

Limited Reconstruction	1.7 miles	$ 35,800
Limited Reconstruction	.5 mile	7,500

PA. ROUTE 403

Between Westmoreland County Line and U.S. Route 219

New Construction	.8 mile	$ 131,000

Limited Reconstruction	.2 mile	16,500

PA. ROUTE 53

Between Pa. Route 56 in Johnstown and Clearfield County Line

New Construction	.1 mile	$ 17,000
Limited Reconstruction	5.7 miles	210,800
New Lane Construction	2.1 miles	257,500
New Construction	6.9 miles	970,800
Limited Reconstruction	7.1 miles	310,500
New Construction	1.8 miles	256,600
Limited Reconstruction	2.1 miles	107,200
New Construction	.2 mile	55,600
Limited Reconstruction	.5 mile	15,900
New Construction	6.7 miles	374,400
Limited Reconstruction	9.5 miles	781,800
New Construction	3.3 miles	226,500

PA. ROUTE 260

Between Pa. Route 53 and U.S. Route 219

New Construction	3.6 miles	$ 544,500

CAMERON COUNTY

PA. ROUTE 46

Between McKean County Line and U.S. Route 120

Limited Reconstruction	9.5 miles	$ 242,000

U.S. ROUTE 120

Between Elk County Line and Pa. Route 46 in Emporium

Limited Reconstruction	3.1 miles	$ 275,000
New Construction	.8 mile	142,000

U.S. ROUTE 120

Between Pa. Route 46 in Emporium and Clinton County Line

Limited Reconstruction	8.9 miles	$ 287,000
Limited Reconstruction	1.1 miles	55,000
Limited Reconstruction	6.7 miles	462,000
Limited Reconstruction	2.6 miles	191,000

CARBON COUNTY

U.S. ROUTE 309

Between Luzerne County Line and U.S. Route 209

New Construction	.2 mile	$ 38,000
New Construction	1.5 miles	315,100
New Construction	1.8 miles	406,000
New Construction	1.1 miles	252,000

U.S. ROUTES 309 and 209

Between junction of U.S. Routes 309 and 209 and their separation at Weissport

New Construction	3.5 miles	$ 1,174,000
New Construction	.2 mile	60,000
New Lane Construction	1.4 miles	61,600

U.S. ROUTE 309

Between U.S. Route 209 and Northampton County Line

New Construction	6.9 miles	$ 3,624,100

U.S. ROUTE 209
Between Schuylkill County Line and U.S. Route 309

Limited Reconstruction	3.1 miles	$ 134,200
New Construction	2.3 miles	669,500

U.S. ROUTE 209
Between U.S. Route 309 and Monroe County Line

Limited Reconstruction	10.6 miles	$ 236,000

U.S. ROUTE 903
Between Monroe County Line and U.S. Route 309 (and also U.S. Route 209)

New Construction	1.0 mile	$ 170,000

CENTRE COUNTY

PA. ROUTE 45
Between Union County Line and Pa. Route 53

Limited Reconstruction	13.6 miles	$ 213,000

U.S. ROUTE 220
Between Clinton County Line and Blair County Line

Limited Reconstruction	14.6 miles	$ 566,500
Limited Reconstruction	5.7 miles	169,000
New Construction	.6 mile	126,500

PA. ROUTE 53
Between Clearfield County Line and U.S. Route 220

Limited Reconstruction	10.7 miles	$ 605,000
New Lane Construction	2.9 miles	506,000
Limited Reconstruction	1.9 miles	132,000

PA. ROUTE 53
Between U.S. Route 220 and U.S. Route 322

New Construction	.5 mile	$ 440,000
New Construction	6.0 miles	1,210,000
New Construction	.9 mile	126,500

PA. ROUTE 53
Between Clearfield County Line through Philipsburg south along Clearfield County Line

New Construction	.6 mile	$ 148,500

U.S. ROUTE 322
Between Clearfield County Line and Mifflin County Line

New Lane Construction	1.0 mile	$ 176,000
Limited Reconstruction	3.8 miles	159,500
New Lane Construction	3.8 miles	311,000
Limited Reconstruction	3.3 miles	152,000
Limited Reconstruction	.9 mile	60,500

CHESTER COUNTY

PA. ROUTE 100
Between Montgomery County Line and Leg. Route 15092 north of West Chester

New Construction	23.2 miles	$ 8,030,000

WEST CHESTER BY-PASS
Between U.S. Route 322 and Pa. Route 52

New Construction	8.2 miles	$ 3,400,000

PA. ROUTE 52
Between West Chester By-Pass and U.S. Route 1

New Construction	5.7 miles	$ 1,625,000

U.S. ROUTE 30
Between Lancaster County Line and Old U.S. Route 30

New Construction	10.6 miles	$ 3,000,000

U.S. ROUTE 30
Between Old U.S. Route 30 and Delaware County Line

Limited Reconstruction	2.9 miles	$ 586,000
Limited Reconstruction	4.9 miles	560,000

U.S. ROUTE 1
Between Maryland State Line and Pa. Route 41

New Lane Construction	11.9 miles	$ 2,432,000
New Construction	.6 mile	187,000

U.S. ROUTE 1
Between Pa. Route 41 and Delaware County Line

Limited Reconstruction	.5 mile	$ 44,000
New Lane Construction	1.9 miles	290,000
Limited Reconstruction	.3 mile	39,500
Limited Reconstruction	3.9 miles	340,000

U.S. ROUTE 322
Between Lancaster County Line and Old U.S. Route 30

New Construction	13.9 miles	$ 3,270,000

U.S. ROUTE 322
Between Old U.S. Route 30 and West Chester By-Pass

New Construction	5.4 miles	$ 1,715,000

U.S. ROUTE 202
Between West Chester By-Pass and Montgomery County Line

New Construction	12.6 miles	$ 5,795,000

PA. ROUTE 41
Between Lancaster County Line and U.S. Route 1

New Construction	11.7 miles	$ 3,165,000

U.S. ROUTE 202
Between West Chester By-Pass and Delaware County Line

New Lane Construction	3.2 miles	$ 275,000

PA. ROUTE 3
Between West Chester By-Pass and Delaware County Line

New Construction	6.3 miles	$ 3,259,000

U.S. ROUTE 122
Between Lancaster County Line and U.S. Route 30

New Construction	1.9 miles	$ 235,000
Limited Reconstruction	5.8 miles	118,000
New Construction	3.1 miles	971,000

U.S. ROUTE 122
Between U.S. Route 30 and U.S. Route 1

New Construction	7.0 miles	$ 2,020,000

Limited Reconstruction	3.3 miles	281,000
New Construction	5.1 miles	1,395,000

CLARION COUNTY

PA. ROUTE 36
Between Jefferson County Line and Pa. Route 860

Limited Reconstruction	6.8 miles	$ 150,000

PA. ROUTE 66
Between Forest County Line and U.S. Route 322

Limited Reconstruction	1.3 miles	$ 93,000

PA. ROUTE 66
Between Armstrong County Line and U.S. Route 322

Limited Reconstruction	15.8 miles	$ 881,400

U.S. ROUTE 322
Between Venango County Line and Jefferson County Line

New Construction	4.6 miles	$ 770,000
New Construction	1.1 miles	231,000
Limited Reconstruction	5.5 miles	198,300
New Construction	.5 mile	187,000
New Construction	3.5 miles	649,000
Limited Reconstruction	3.4 miles	246,600

PA. ROUTE 238
Between Venango County Line and U.S. Route 322

Limited Reconstruction	2.5 miles	$ 157,300

PA. ROUTE 368
Between Armstrong County Line and U.S. Route 322

Limited Reconstruction	19.8 miles	$ 1,126,400
New Construction	.7 mile	206,000

PA. ROUTE 28
Between Armstrong County Line and Jefferson County Line

Limited Reconstruction	4.1 miles	$ 339,600

CLEARFIELD COUNTY

PA. ROUTE 255
Between Elk County Line and Pa. Route 219

Limited Reconstruction	9.8 miles	$ 254,000

PA. ROUTE 153
Between Pa. Route 255 and U.S. Route 322

Limited Reconstruction	14.6 miles	$ 442,000

U.S. ROUTES 219 and 322
Between junction of U.S. Routes 219 and 322 and their separation at Grampian

Limited Reconstruction	12.5 miles	$ 1,463,000

U.S. ROUTE 219
Between U.S. Route 322 at Grampion and Indiana County Line

Limited Reconstruction	25.2 miles	$ 1,219,500
New Construction	.4 mile	193,000

U.S. ROUTE 322
Between U.S. Route 219 at Grampian and Center County Line

Limited Reconstruction	4.9 miles	$ 530,000
New Construction	.9 mile	570,000
Limited Reconstruction	2.3 miles	103,000
New Lane Construction	1.7 miles	384,000
Limited Reconstruction	6.4 miles	209,000
Limited Reconstruction	3.4 miles	95,000

U.S. ROUTE 119
Between Jefferson County Line and U.S. Route 219

New Construction	3.8 miles	$ 671,000

PA. ROUTE 36
Between Indiana County Line and U.S. Route 219

Limited Reconstruction	2.7 miles	$ 62,000

PA. ROUTE 53
Between Cambria County Line and Centre County Line

Limited Reconstruction	8.6 miles	$ 274,000
Limited Reconstruction	.2 mile	21,000
Limited Reconstruction	2.9 miles	159,000

PA. ROUTE 53
Between northern entrance at Centre County Line and next exit into Centre County near Philipsburg

Limited Reconstruction	8.3 miles	$ 319,000
Limited Reconstruction	4.3 miles	165,000

CLINTON COUNTY

U.S. ROUTE 120
Between Cameron County Line and U.S. Route 220

Limited Reconstruction	19.4 miles	$ 902,000
Limited Reconstruction	3.0 miles	143,000
Limited Reconstruction	1.0 mile	33,000
New Construction	1.0 mile	286,000

U.S. ROUTE 220
Between Centre County Line and Lycoming County Line

Limited Reconstruction	.7 mile	$ 69,000
New Lane Construction	1.7 miles	400,000
New Lane Construction	8.5 miles	1,265,000

COLUMBIA COUNTY

PA. ROUTE 442
Between Lycoming County Line and Pa. Route 115 (and also Pa. Route 42)

Limited Reconstruction	3.6 miles	$ 159,500

PA. ROUTE 42
Between Pa. Route 115 (and also Pa. Route 442) and U. S. Route 11

Limited Reconstruction	8.6 miles	$ 363,000
New Construction	.5 mile	176,000

PA. ROUTE 42
Between U.S. Route 11 and U.S. Route 122

New Lane Construction	2.4 miles	$ 330,000

New Construction	.8 mile	330,000
Limited Reconstruction	2.4 miles	117,000
New Construction	1.3 miles	242,000

U.S. ROUTE 122

Between Northumberland County Line and Schuylkill County Line

Limited Reconstruction	1.4 miles	$ 66,000

U.S. ROUTE 11

Between Montour County Line and Luzerne County Line

New Construction	2.9 miles	$ 650,000
Limited Reconstruction	2.1 miles	102,500
New Construction	6.5 miles	1,408,000
Limited Reconstruction	.7 mile	55,000

PA. ROUTE 115

Between Pa. Route 42 (and also Pa. Route 442) and Luzerne County Line

Limited Reconstruction	10.7 miles	$ 234,300
New Construction	3.2 miles	313,500
Limited Reconstruction	5.2 miles	216,700

PA. ROUTE 642

Between Lycoming County Line and Pa. Route 115

New Construction	7.5 miles	$ 1,008,000

CRAWFORD COUNTY

PA. ROUTE 8

Between Erie County Line and Venango County Line

Limited Reconstruction	.3 mile	$ 16,000
New Construction	.4 mile	161,000

PA. ROUTE 27

Between eastern entrance at Venango County Line and next exit into Venango County

Limited Reconstruction	.4 mile	$ 15,500

PA. ROUTE 27

Between western entrance at Venango County Line and Meadville at the intersection of North Street and Park Avenue

Limited Reconstruction	1.1 miles	$ 28,000
Limited Reconstruction	.4 mile	12,000
Limited Reconstruction	.2 mile	10,000

U.S. ROUTE 322

Between Mercer County Line and Meadville at the intersection of Linden Street and Park Avenue

New Construction	2.4 miles	$ 460,000
New Construction	3.8 miles	599,000
New Construction	.4 mile	88,000

U.S. ROUTES 19 and 6

Between Erie County Line and Meadville at the intersection of North Street and Park Avenue

Limited Reconstruction	2.3 miles	$ 74,000
Limited Reconstruction	2.7 miles	108,000
Limited Reconstruction	4.1 miles	130,000
New Construction	.9 mile	124,000
Limited Reconstruction	2.5 miles	59,000

U.S. ROUTE 6

In Meadville between the intersection of Arch Street and Park Avenue and the intersection of Linden Street and Park Avenue

New Construction	.5 mile	$ 134,000

U.S. ROUTES 6 and 322

Between Meadville, at the intersection of Poplar Street and Park Avenue, and the separation of U.S. Routes 322 and 6

New Construction	2.0 miles	$ 752,000
Limited Reconstruction	.9 mile	29,000
New Lane Construction	1.3 miles	181,000
Limited Reconstruction	.7 mile	33,000
New Lane Construction	3.4 miles	484,000

PA. ROUTE 18

Between U.S. Route 322 and Mercer County Line

Limited Reconstruction	.8 mile	$ 36,000
Limited Reconstruction	1.0 mile	40,000

U.S. ROUTE 322

Between Mercer County Line and Ohio State Line

Limited Reconstruction	5.0 miles	$ 102,000

PA. ROUTE 285

Between Ohio State Line and U.S. Route 6

Limited Reconstruction	.2 mile	$ 6,500
New Construction	3.0 miles	429,000

PA. ROUTE 98

Between Erie County Line and Meadville at the intersection of Park Avenue and Poplar Street

Limited Reconstruction	17.3 miles	$ 616,000
New Construction	2.0 miles	291,000
New Lane Construction	.4 mile	56,000
Limited Reconstruction	.4 mile	14,000

U.S. ROUTE 19

Between U.S. Route 322 (and also U.S. Route 6) and Mercer County Line

New Lane Construction	10.0 miles	$ 1,263,000

PA. ROUTE 99

Between Erie County Line and U.S. Route 19 (and also U.S. Route 6)

Limited Reconstruction	2.1 miles	$ 83,000

CUMBERLAND COUNTY

U.S. ROUTE 11

Between Franklin County Line and Pa. Route 34

Limited Reconstruction	16.3 miles	$ 511,500
New Construction	.1 mile	11,800

U.S. ROUTE 11

Between Pa. Route 34 and U.S. Route 11 By-Pass

New Lane Construction	2.2 miles	$ 253,500
Limited Reconstruction	5.9 miles	244,000

U.S. ROUTE 11 BY-PASS
Between Susquehanna River and U.S. Route 15

New Construction	2.7 miles	$ 2,309,400

U.S. ROUTE 15 and BY-PASS
Between York County Line and new U.S. Route 11 By-Pass

New Construction	7.9 miles	$ 1,915,800

BY-PASS TO SOUTH BRIDGE -- LEG. ROUTE 767
Between U.S. Route 11 and South Bridge at the Dauphin County Line

New Construction	5.8 miles	$ 4,068,200

U.S. ROUTE 111 RELOCATED
Between Leg. Route 767 and York County Line

New Construction	1.3 miles	$ 677,600

U.S. ROUTES 11 and 15
Between Perry County Line and Leg. Route 767

Limited Reconstruction	4.0 miles	$ 180,400
New Lane Construction	2.3 miles	269,100
Limited Reconstruction	.9 mile	68,500

PA. ROUTE 34
Between Perry County Line and U.S. Route 11 in Carlisle

Limited Reconstruction	6.2 miles	$ 365,200
Limited Reconstruction	.7 mile	19,000

PA. ROUTE 34
Between U.S. Route 11 in Carlisle and Adams County Line

New Construction	3.5 miles	$ 936,100
Limited Reconstruction	5.1 miles	190,500

PA. ROUTE 94
Between Adams County Line and Pa. Route 34

New Construction	.9 mile	$ 154,000

DAUPHIN COUNTY

PA. ROUTE 441
Between Lancaster County Line and U.S. Route 230

Limited Reconstruction	2.0 miles	$ 23,100
Limited Reconstruction	.3 mile	2,200

U.S. ROUTE 230
Between Lancaster County Line and U.S. Route 22 (and also U.S. Route 322 and Pa. Route 14)

New Lane Construction	1.9 miles	$ 115,500
Limited Reconstruction	.6 mile	35,200
New Lane Construction	.6 mile	42,900
New Construction	1.0 mile	142,500
Limited Reconstruction	.9 mile	37,400
Limited Reconstruction	.6 mile	19,800
Limited Reconstruction	1.2 miles	52,000

U.S. ROUTES 230, 322, and 422
Between U.S. Route 230 and U.S. Route 22

Limited Reconstruction	.2 mile	$ 42,900

U.S. ROUTE 230 BY-PASS
Between U.S. Route 230 and U.S. Route 322 (and also U.S. Route 422)

New Construction	2.8 miles	$ 605,000

U.S. ROUTE 322
Between Lebanon County Line and U.S. Route 422

Limited Reconstruction	4.6 miles	$ 350,000

U.S. ROUTE 422
Between Lebanon County Line and Cumberland County Line

New Lane Construction	1.7 miles	$ 54,000
New Lane Construction	.1 mile	5,500
New Construction	4.1 miles	2,090,000
New Construction	.8 mile	4,765,200

U.S. ROUTES 422 and 322
Between junction of U.S. Routes 422 and 322 at Hummelstown and Cumberland County Line

New Lane Construction	4.4 miles	$ 341,000
New Construction	2.1 miles	1,254,000
New Construction	1.9 miles	7,810,000

U.S. ROUTE 422 BY-PASS
Between U.S. Route 422 (and also U.S. Route 322 and U.S. Route 22)

New Construction	3.0 miles	$ 1,780,000

U.S. ROUTES 22 and 322, and PA. ROUTE 14
Between U.S. Route 22 and separation of U.S. Routes 322 and 22 from Pa. Route 14

Limited Reconstruction	.6 mile	$ 22,000
New Lane Construction	2.5 miles	264,000
New Construction	1.5 miles	552,100

PA. ROUTE 14
Between U.S. Route 22 (and also U.S. Route 322) and Northumberland County Line

Limited Reconstruction	5.5 miles	$ 66,000
New Lane Construction	.2 mile	11,000
Limited Reconstruction	5.5 miles	73,700
New Construction	.4 mile	203,500
Limited Reconstruction	.2 mile	14,300
Limited Reconstruction	5.9 miles	140,800

U.S. ROUTES 11 and 15
New approach to Juniata River Bridge

New Construction	.2 mile	$ 78,000

U.S. ROUTE 209
Between Schuylkill County Line and Pa. Route 14

Limited Reconstruction	2.8 miles	$ 125,400
Limited Reconstruction	1.5 miles	44,000

NORTH BRIDGE CONNECTION
Between U.S. Route 22 and U.S. Route 11

New Construction	.8 mile	$ 4,765,200

SOUTH BRIDGE CONNECTION
Between U.S. Route 111 and U.S. Route 422

New Construction	1.9 miles	$ 7,810,000

DELAWARE COUNTY

U.S.ROUTE 1
Between Chester County Line and Philadelphia Line

New Lane Construction	7.4 miles	$ 1,338,000
New Construction	.7 mile	480,000
New Lane Construction	1.9 miles	355,000

MEDIA BY-PASS -- LEG. ROUTES 23030, 23031, 23051, and 719
Between U.S. Route 1 and Philadelphia Line

New Construction	6.2 miles	$ 3,440,000
Limited Reconstruction	1.4 miles	240,000
New Construction	.4 mile	1,200,000

U.S. ROUTE 202
Between Delaware State Line and Chester County Line

New Lane Construction	4.8 miles	$ 526,000

U.S. ROUTE 322
Between U.S. Route 1 and Delaware River

New Construction	1.0 mile	$ 555,000

PA. ROUTE 452
Between U.S. Route 1 and U.S. Route 13

Limited Reconstruction	6.3 miles	$ 538,000

PA. ROUTE 320
Between Montgomery County Line and U.S. Route 13

New Construction	2.5 miles	$ 927,000
Limited Reconstruction	1.1 miles	218,000
New Lane Construction	1.8 miles	149,000
New Construction	1.5 miles	1,008,000
New Lane Construction	.5 mile	175,000
New Lane Construction	.3 mile	56,000
New Construction	.1 mile	39,000

U.S. ROUTE 30 BY-PASS
Between U.S. Route 30 and Montgomery County Line

New Lane Construction	2.1 miles	$ 297,000
New Construction	.4 mile	121,000

PA. ROUTE 3
Between Chester County Line and Philadelphia Line

New Construction	10.4 miles	$ 7,711,000
Limited Reconstruction	.7 mile	76,000

U.S. ROUTE 13 BY-PASS
Between U.S. Route 1 By-Pass and U.S. Route 13

New Lane Construction	.7 mile	$ 53,500
New Construction	.9 mile	228,000

U.S. ROUTE 13
Between Delaware State Line and Philadelphia Line

New Construction	8.3 miles	$11,058,800
Limited Reconstruction	5.7 miles	205,000

SIMPSON STREET CONNECTION in CHESTER
Between U.S. Route 13 and Pa. Route 291

New Construction	.6 mile	$ 565,500

PA. ROUTE 291
Between Delaware State Line and U.S. Route 13

New Construction	.4 mile	$ 265,000

ELK COUNTY

U.S. ROUTE 219
Between McKean County Line and Pa. Route 948 west of Ridgway

Limited Reconstruction	4.5 miles	$ 264,000
Limited Reconstruction	.6 mile	43,000
New Construction	8.3 miles	1,563,000

U.S. ROUTE 219
Between Pa. Route 948 west of Ridgway and Jefferson County Line

New Lane Construction	.9 mile	$ 290,000
New Construction	1.6 miles	247,500

PA. ROUTE 255
Between U.S. Route 219 south of Johnsonburg and U.S. Route 120 in St. Marys

Limited Reconstruction	.4 mile	$ 22,000

PA. ROUTE 255
Between U.S. Route 120 and Clearfield County Line

Limited Reconstruction	10.8 miles	$ 792,000

U.S. ROUTE 120
Between Pa. Route 255 north of St. Marys and Cameron County Line

Limited Reconstruction	7.2 miles	$ 319,000

PA. ROUTE 68
Between McKean County Line and Forest County Line

Limited Reconstruction	9.1 miles	$ 203,000

ERIE COUNTY

PA. ROUTE 5
Between Ohio State Line and Pa. Route 5 Alt.

Limited Reconstruction	6.3 miles	$ 145,500
New Lane Construction	5.0 miles	669,000

PA. ROUTE 5 ALT.
Between separation from Pa. Route 5 and junction with Pa. Route 5 in Erie city at East Lake Road and City Line

New Lane Construction	3.4 miles	$ 380,000
Limited Reconstruction	1.2 miles	120,000
Limited Reconstruction	.6 mile	60,000

PA. ROUTE 5
Between Erie city, at the intersection of East Sixth Street and Parade Street, and U.S. Route 20 By-Pass (and also Pa. Route 5 By-Pass)

Limited Reconstruction	.5 mile	$ 14,000
New Lane Construction	1.0 mile	131,000
New Construction	.8 mile	77,000
New Construction	2.6 miles	423,000
Limited Reconstruction	4.4 miles	132,000

New Construction	.6 mile	340,700

U.S. ROUTE 20
Between New York State Line and Erie city at the intersection of Pittsburgh Avenue and Ridge Road

New Construction	.3 mile	$ 36,000
Limited Reconstruction	1.0 mile	50,000
New Construction	6.0 miles	426,000
Limited Reconstruction	1.5 miles	50,000
New Construction	.4 mile	77,000
Limited Reconstruction	.8 mile	22,000
New Construction	.1 mile	25,000

U.S ROUTE 20
Between Erie city, at the intersection of Pittsburgh Avenue and Ridge Avenue, and Ohio State Line

New Lane Construction	2.7 miles	$ 403,000
Limited Reconstruction	4.1 miles	178,000
New Construction	3.5 miles	1,108,000
New Construction	7.8 miles	2,892,000
Limited Reconstruction	2.4 miles	110,000

U.S ROUTE 20 and PA. ROUTE 5 (ERIE BY-PASS)
Between New York State Line and U.S. Route 20

New Construction	30.5 miles	$ 9,917,000

PA. ROUTE 89
Between U.S. Route 20 and Pa. Route 8

Limited Reconstruction	3.8 miles	$ 171,000
Limited Reconstruction	.4 mile	11,500
Limited Reconstruction	2.8 miles	62,000

PA. ROUTE 8
Between Pa. Route 89 and Crawford County Line

New Construction	4.0 miles	$ 727,000
Limited Reconstruction	3.8 miles	145,000
New Construction	.2 mile	52,000

U.S. ROUTE 6
Between Warren County Line and Pa. Route 6 N

Limited Reconstruction	2.4 miles	$ 104,000
Limited Reconstruction	3.5 miles	102,000
New Lane Construction	.6 mile	84,000
Limited Reconstruction	8.7 miles	335,000

U.S. ROUTE 6 N
Between U.S. Route 6 and U.S. Route 20

Limited Reconstruction	7.2 miles	$ 175,000
Limited Reconstruction	6.2 miles	139,000
Limited Reconstruction	7.8 miles	242,000

PA. ROUTE 97
Between Pa. Route 8 and U.S. Route 19

Limited Reconstruction	7.6 miles	$ 187,000

PA. ROUTE 97
Between U.S. Route 19 and U.S. Route 20 in Erie city

Limited Reconstruction	8.5 miles	$ 352,000
New Construction	2.3 miles	374,000
New Construction	.4 mile	80,000

U.S. ROUTE 19
Between Crawford County Line and U.S. Route 20 in Erie city

New Construction	7.8 miles	$ 1,350,000
Limited Reconstruction	6.4 miles	264,000
Limited Reconstruction	.5 mile	20,000

PA. ROUTE 99
Between Crawford County Line and U.S. Route 19

Limited Reconstruction	.8 mile	$ 24,000
Limited Reconstruction	4.7 miles	132,000
New Construction	2.9 miles	484,000
New Construction	1.2 miles	203,000

PA. ROUTE 98
Between Crawford County Line and Pa. Route 5

Limited Reconstruction	5.9 miles	$ 184,000
New Construction	5.1 miles	962,000
Limited Reconstruction	.2 mile	7,000
Limited Reconstruction	.5 mile	29,000
Limited Reconstruction	.4 mile	46,000

FAYETTE COUNTY

U.S. ROUTE 40
Between Washington County Line and U.S. Route 119 in Uniontown

New Lane Construction	.8 mile	$ 115,900
Limited Reconstruction	8.8 miles	881,200
New Construction	.6 mile	151,900

U.S. ROUTE 40
Between U.S. Route 119 in Uniontown and Somerset County Line

New Lane Construction	1.4 miles	$ 180,400
Limited Reconstruction	5.5 miles	236,200
Limited Reconstruction	4.1 miles	181,300

PA. ROUTE 711
Between Westmoreland County Line and U.S. Route 119 in Connellsville

Limited Reconstruction	1.8 miles	$ 151,100
New Construction	.3 mile	118,300
New Lane Construction	1.2 miles	281,400
New Construction	1.2 miles	288,900
New Construction	3.0 miles	616,600
Limited Reconstruction	2.8 miles	119,800
New Construction	1.0 mile	193,600
Limited Reconstruction	2.0 miles	87,800
New Construction	.4 mile	85,000

PA. ROUTE 711
Between U.S. Route 119 in Connellsville and Pa. Route 653

Limited Reconstruction	4.6 miles	$ 197,800

U.S. ROUTE 119
Between Westmoreland County Line and Pa. Route 711 in Connellsville

Limited Reconstruction	2.3 miles	$ 97,800
New Construction	2.3 miles	1,801,500

U.S. ROUTE 119
Between Pa. Route 711 in Connellsville and U.S. Route 40 in Uniontown

New Construction	.8 mile	$ 191,800
Limited Reconstruction	.4 mile	18,500
New Construction	6.0 miles	2,173,100
New Construction	.7 mile	161,200

U.S. ROUTE 119
Between U.S. Route 40 in Uniontown and West Virginia State Line

Limited Reconstruction	3.4 miles	$ 253,600
New Construction	6.5 miles	1,489,200

PA. ROUTE 166
Between U.S. Route 119 in Pt. Marion and Pa. Route 21 relocated

Limited Reconstruction	4.0 miles	$ 70,100
Limited Reconstruction	.8 mile	18,400
New Construction	.9 mile	181,100
Limited Reconstruction	1.7 miles	59,600

PA. ROUTE 166
Between Pa. Route 21 relocated and U.S. Route 40

Limited Reconstruction	11.0 miles	$ 769,000

PA. ROUTE 21
Between Greene County Line and U.S. Route 40 in Uniontown

New Construction	11.9 miles	$ 4,525,200

PA. ROUTE 51
Between Westmoreland County Line and U.S. Route 119 (and also U.S. Route 40) in Uniontown

Limited Reconstruction	7.4 miles	$ 363,100
New Construction	.1 mile	21,700
New Lane Construction	.2 mile	11,100

PA. ROUTE 71
Between Westmoreland County Line and Washington County Line

Limited Reconstruction	.3 mile	$ 9,700

PA. ROUTE 982
Between Westmoreland County Line and U.S. Route 119

Limited Reconstruction	1.7 miles	$ 36,200
Limited Reconstruction	1.8 miles	16,600

FOREST COUNTY

PA. ROUTE 68
Between Clarion County Line and Elk County Line

Limited Reconstruction	5.6 miles	$ 203,500
New Construction	.3 mile	67,500
Limited Reconstruction	11.5 miles	454,000

U.S. ROUTE 62
Between Venango County Line and Pa. Route 66 in Tionesta

Limited Reconstruction	2.6 miles	$ 117,200

U.S. ROUTE 62
Between Pa. Route 66 in Tionesta and Warren County Line

Limited Reconstruction	9.4 miles	$ 432,500

PA. ROUTE 66
Between Clarion County Line and U.S. Route 62 in Tionesta

Limited Reconstruction	.2 mile	$ 15,800

FRANKLIN COUNTY

PA. ROUTE 16
Between Adams County Line and Fulton County Line

Limited Reconstruction	.4 mile	$ 29,700
Limited Reconstruction	.6 mile	27,900
New Construction	3.0 miles	356,400
New Construction	.5 mile	64,800
Limited Reconstruction	5.9 miles	203,500
Limited Reconstruction	1.8 miles	47,900
New Lane Construction	.2 mile	15,400

PA. ROUTE 316
Between Pa. Route 16 and U.S. Route 11

Limited Reconstruction	.5 mile	$ 24,200

U.S. ROUTE 11
Between Maryland State Line and Cumberland County Line

New Lane Construction	3.9 miles	$ 377,100
New Construction	2.1 miles	436,200
New Construction	4.0 miles	757,600
New Lane Construction	.2 mile	11,200
Limited Reconstruction	.4 mile	37,500
New Construction	5.4 miles	1,258,100
New Construction	.2 mile	44,100

U.S. ROUTE 30
Between Adams County Line and Fulton County Line

Limited Reconstruction	9.0 miles	$ 524,800

FULTON COUNTY

U.S. ROUTE 522 and NEW HIGHWAY
Between Maryland State Line and Bedford County Line

New Construction	19.1 miles	$ 3,890,000

U.S. ROUTE 522
Between Pa. Route 126 relocated and Huntingdon County Line

Limited Reconstruction	21.4 miles	$ 553,300

U.S. ROUTE 30
Between Bedford County Line and Franklin County Line

Limited Reconstruction	18.4 miles	$ 364,400

PA. ROUTE 16
Between U.S. Route 30 and Franklin County Line

Limited Reconstruction	3.0 miles	$ 53,000

PA. ROUTE 913
Between Huntingdon County Line through New Granada and first exit into Huntingdon County

Limited Reconstruction	.2 mile	$ 7,000

PA. ROUTE 913
Between Pa. Route 76 and Huntingdon County Line

Limited Reconstruction	.7 mile	$ 22,000

PA. ROUTE 76
Between Huntingdon County Line and Pa. Route 913

Limited Reconstruction	.1 mile	$ 1,900

PA. ROUTE 76
Between Pa. Route 913 and Pa. Route 176

Limited Reconstruction	7.0 miles	$ 161,000

PA. ROUTE 176
Between Pa. Route 761 in Hustontown and U.S. Route 522

Limited Reconstruction	3.9 miles	$ 82,000

GREENE COUNTY

PA. ROUTE 21
Between West Virginia State Line and Pa. Route 18

Limited Reconstruction	2.6 miles	$ 81,300
Limited Reconstruction	6.7 miles	269,100

PA. ROUTE 21
Between U.S. Route 19 and Fayette County Line

New Construction	2.0 miles	$ 433,100

PA. ROUTE 88
Between Washington County Line and Fayette County Line

Limited Reconstruction	3.3 miles	$ 135,100
Limited Reconstruction	11.4 miles	739,000
New Construction	2.9 miles	276,100

U.S. ROUTE 19
Between Washington County Line and Pa. Route 18 in Waynesburg

Limited Reconstruction	8.0 miles	$ 383,500

U.S. ROUTE 19
Between Pa. Route 18 in Waynesburg and West Virginia State Line

Limited Reconstruction	.5 mile	$ 19,600
Limited Reconstruction	12.5 miles	394,700

PA. ROUTE 18
Between West Virginia State Line and U.S. Route 19 in Waynesburg

Limited Reconstruction	6.2 miles	$ 264,500
New Construction	3.2 miles	756,200

PA. ROUTE 188
Between U.S. Route 19 and Pa. Route 88

Limited Reconstruction	4.5 miles	$ 145,900
Limited Reconstruction	3.2 miles	87,100

HUNTINGDON COUNTY

U.S. ROUTE 522
Between Fulton County Line and U.S. Route 22 in Mt. Union

Limited Reconstruction	4.6 miles	$ 18,700
New Construction	1.0 mile	121,000
Limited Reconstruction	.2 mile	6,600

U.S. ROUTE 22
Between U.S. Route 522 and Pa. Route 350

New Lane Construction	4.4 miles	$ 547,200

U.S. ROUTE 22
Between Pa. Route 350 and Blair County Line

New Construction	1.5 miles	$ 775,000
New Lane Construction	1.3 miles	105,000
New Construction	.4 mile	99,300

PA. ROUTE 350
Between U.S. Route 22 and Blair County Line

New Construction	1.3 miles	$ 231,000
Limited Reconstruction	2.1 miles	46,200

PA. ROUTE 26
Between Bedford County Line and U.S. Route 22

Limited Reconstruction	.7 mile	$ 17,600
New Construction	3.2 miles	276,300

PA. ROUTE 545
Between U.S. Route 22 and Centre County Line

New Construction	23.7 miles	$ 1,743,500

PA. ROUTE 913
Between Fulton County Line and Bedford County Line

Limited Reconstruction	6.3 miles	$ 204,300
Limited Reconstruction	.7 mile	3,500
New Construction	1.5 miles	118,800
Limited Reconstruction	.9 mile	26,400

INDIANA COUNTY

U.S. ROUTE 422
Between Cambria County Line and Indiana borough at the intersection of Philadelphia Street and Paper Mill Alley

Limited Reconstruction	15.4 miles	$ 928,000
Limited Reconstruction	.6 mile	31,000

U.S. ROUTE 422
Between Indiana borough, at the intersection of Philadelphia Street and Paper Mill Alley, and Armstrong County Line

Limited Reconstruction	1.3 miles	$ 54,000

U.S. ROUTE 22
Between Cambria County Line and U.S. Route 119

Limited Reconstruction	10.2 miles	$ 754,000
New Construction	1.3 miles	467,000
Limited Reconstruction	2.4 miles	148,000
New Construction	1.8 miles	660,000

U.S. ROUTES 119 and 22
Between Westmoreland County Line and separation of U.S. Routes 119 and 22

New Construction	2.8 miles	$ 1,012,000

PA. ROUTE 403
Between Cambria County Line and U.S. Route 22

Limited Reconstruction	2.2 miles	$ 110,000

U.S. ROUTE 119
Between U.S. Route 22 and U.S. Route 422 in Indiana borough at the intersection of Philadelphia and Seventh Streets

New Construction	2.3 miles	$ 720,000
Limited Reconstruction	1.9 miles	116,600
New Construction	3.6 miles	1,133,000
New Lane Construction	2.1 miles	432,000

U.S. ROUTE 119
Between U.S. Route 422 in Indiana borough, at the intersection of Philadelphia and Fourth Streets, and Jefferson County Line

Limited Reconstruction	3.0 miles	$ 379,000
New Construction	1.4 miles	421,000
Limited Reconstruction	11.5 miles	657,000

PA. ROUTE 80
Between Westmoreland County Line and U.S. Route 22 in Indiana borough at the intersection of Philadelphia and Ninth Streets

New Construction	1.2 miles	$ 264,000
Limited Reconstruction	3.7 miles	108,000

PA. ROUTE 85
Between Armstrong County Line and Pa. Route 119

Limited Reconstruction	8.8 miles	$ 359,500

PA. ROUTE 36
Between Jefferson County Line and Clearfield County Line

Limited Reconstruction	.6 mile	$ 24,000

U.S. ROUTE 219
Between Clearfield County Line and Cambria County Line through Cherry Tree

Limited Reconstruction	.8 mile	$ 55,000

JEFFERSON COUNTY

PA. ROUTE 28
Between Clarion County Line and U.S. Route 322 in Brookville

New Construction	.5 mile	$ 105,600

PA. ROUTE 28
Between U.S. Route 322 in Brookville and U.S. Route 219

Limited Reconstruction	16.1 miles	$ 972,900

U.S. ROUTE 322
Between Clarion County Line and Pa. Route 36 in Brookville

Limited Reconstruction	1.7 miles	$ 133,000
New Construction	.7 mile	250,000

U.S. ROUTE 322
Between Pa. Route 36 in Brookville and Clearfield County County Line

New Construction	.2 mile	$ 151,800
Limited Reconstruction	6.1 miles	207,900

U.S. ROUTE 219
Between Clearfield County Line and Elk County Line

Limited Reconstruction	7.4 miles	$ 445,500
Limited Reconstruction	2.5 miles	123,200

PA. ROUTE 36
Between Clarion County Line and U.S. Route 322 in Brookville

Limited Reconstruction	16.2 miles	$ 731,000
New Construction	.4 mile	149,500

PA. ROUTE 36
Between U.S. Route 322 in Brookville and U.S. Route 119 in Punxsutawney

Limited Reconstruction	13.3 miles	$ 376,600
New Construction	3.5 miles	572,000
New Lane Construction	.7 mile	108,000
Limited Reconstruction	1.0 mile	132,000

PA. ROUTE 36
Between U.S. Route 119 in Punxsutawney and Indiana County Line

New Construction	.6 mile	$ 134,000
Limited Reconstruction	8.6 miles	342,200

U.S. ROUTE 119
Between Indiana County Line and Clearfiled County Line

New Construction	.6 mile	$ 109,000
New Lane Construction	.3 mile	35,000
Limited Reconstruction	13.6 miles	970,800
Limited Reconstruction	1.0 mile	64,000

JUNIATA COUNTY

U.S. ROUTES 22 and 322
Between Mifflin County Line and Perry County Line

Limited Reconstruction	.3 mile	$ 18,000
New Lane Construction	2.3 miles	337,200
New Construction	2.1 miles	588,500
New Lane Construction	6.4 miles	950,300
New Construction	1.0 mile	334,600
New Lane Construction	1.5 miles	210,700

LACKAWANNA COUNTY

U.S. ROUTE 106
Between Susquehanna County Line and U.S. Route 6

Limited Reconstruction	4.3 miles	$ 60,500
Limited Reconstruction	.6 mile	30,800

U.S. ROUTES 106 AND 6
Between Wayne County Line and separation of U.S. Routes 106 and 6 in Carbondale

Limited Reconstruction	1.0 mile	$ 25,300

U.S. ROUTE 6
Between U.S. Route 106 in Carbondale and U.S. Route 11

Limited Reconstruction	.5 mile	$ 22,600
Limited Reconstruction	.3 mile	8,800

PA. ROUTE 107
Between Wyoming County Line and U.S. Route 6

Limited Reconstruction	5.4 miles	$ 131,300
Limited Reconstruction	1.4 miles	11,000

Limited Reconstruction	2.6 miles	71,500

U.S. ROUTE 11
Between Wyoming County Line and U.S. Route 6

New Construction	6.4 miles	$ 1,225,000
Limited Reconstruction	.9 mile	22,000

NEW U.S. ROUTE 11
Between U.S. Route 6 in Scranton at the intersection of Market and Oak Streets and Luzerne County Line

New Lane Construction	.2 mile	$ 22,000
New Construction	7.7 miles	1,676,000

U.S. ROUTE 11 SPUR
In Scranton between the intersection of Keyser and Washington Streets and Pa. Route 315 at Wyoming Avenue

New Construction	.2 mile	$ 65,000
Limited Reconstruction	.4 mile	28,000

PA. ROUTE 315 (OLD U.S. ROUTE 11)
Between Luzerne County Line and U.S. Route 611 in Scranton at the intersection of Green Ridge Street and Wyoming Avenue

New Construction	1.1 miles	$ 420,000
New Construction	1.4 miles	377,500
Limited Reconstruction	2.2 miles	104,700
New Construction	.3 mile	120,000
Limited Reconstruction	.4 mile	20,200

PA. ROUTE 502
Between Luzerne County Line and Pa. Route 307

Limited Reconstruction	5.6 miles	$ 139,700
Limited Reconstruction	1.5 miles	38,500

U.S. ROUTE 611
Between Wayne County Line and U.S. Route 6 in Scranton at the intersection of West Market and Oak Streets

Limited Reconstruction	3.5 miles	$ 82,500
Limited Reconstruction	.5 mile	7,700
Limited Reconstruction	.7 mile	19,800
Limited Reconstruction	2.5 miles	38,000
New Construction	1.0 mile	320,000

LANCASTER COUNTY

U.S. ROUTE 222
Between Maryland State Line and Pa. Route 72

Limited Reconstruction	4.5 miles	$ 206,500

PA. ROUTE 72
Between U.S. Route 222 at Penn Hill and U.S. Route 222 in Lampeter Township

Limited Reconstruction	3.7 miles	$ 94,100

PA. ROUTE 41
Between Chester County Line and U.S. Route 30

New Construction	3.2 miles	$ 357,200

U.S. ROUTE 30
Between Chester County Line and Susquehanna River

Limited Reconstruction	14.4 miles	$ 1,164,800
New Construction	3.7 miles	1,034,000
Limited Reconstruction	5.5 miles	500,500
Limited Reconstruction	3.7 miles	337,500

PA. ROUTE 441
Between Dauphin County Line and U.S. Route 30

Limited Reconstruction	7.5 miles	$ 142,200
New Construction	4.8 miles	631,100

U.S. ROUTE 230
Between Dauphin County Line and U.S. Route 222

New Lane Construction	1.8 miles	$ 375,000
Limited Reconstruction	1.5 miles	82,800
New Lane Construction	5.1 miles	654,000
New Construction	.2 mile	76,700
New Lane Construction	1.7 miles	387,100

PA. ROUTE 72
Between Lebanon County Line and U.S. Route 222

New Construction	.9 mile	$ 117,300
Limited Reconstruction	.9 mile	34,800
New Construction	2.3 miles	300,000
Limited Reconstruction	2.0 miles	79,400
New Construction	2.5 miles	325,300
Limited Reconstruction	.2 mile	5,000

U.S. ROUTE 230
Between Pa. Route 72 through Rossmere and U.S. Route 30

New Construction	6.1 miles	$ 4,098,100

U.S. ROUTE 322
Between Lebanon County Line and Chester County Line

New Construction	5.1 miles	$ 630,600
Limited Reconstruction	1.5 miles	49,200
New Construction	6.8 miles	849,300
New Construction	4.0 miles	580,200
Limited Reconstruction	.5 mile	26,100

PA. ROUTE 23
Between U.S. Route 222 in Lancaster city, at the intersection of Walnut and Prince Streets, and Pa. Route 73

Limited Reconstruction	1.3 miles	$ 83,700
Limited Reconstruction	4.4 miles	16,800
Limited Reconstruction	.5 miles	2,200

U.S. ROUTE 222
Between Lancaster City Line at South Street and Berks County Line

Limited Reconstruction	.9 mile	$ 65,000
New Construction	1.0 mile	154,000
Limited Reconstruction	.5 mile	5,800

LAWRENCE COUNTY

U.S. ROUTE 224
Between Ohio State Line and U.S. Route 18 in New Castle at the intersection of Front and Washington Streets

Limited Reconstruction	.4 mile	$ 8,300
Limited Reconstruction	1.0 mile	25,000
Limited Reconstruction	4.0 miles	223,500
Limited Reconstruction	.3 mile	13,000
New Construction	.2 mile	39,000

U.S. ROUTE 422

Between Pa. Route 18 and Butler County Line

Limited Reconstruction	.5 mile	$ 17,000
New Construction	9.1 miles	2,636,000

PA. ROUTE 18

Between Mercer County Line and Beaver County Line

Limited Reconstruction	2.9 miles	$ 67,000
Limited Reconstruction	1.4 miles	53,000
Limited Reconstruction	.9 mile	33,000
New Construction	8.6 miles	1,375,000

PA. ROUTE 158

Between Mercer County Line at New Wilmington and Pa. Route 18

Limited Reconstruction	2.9 miles	$ 145,000

PA. ROUTE 488

Between Pa. Route 88 in Ellwood City, at the intersection of Fountain Avenue and Second Street, and Butler County Line

Limited Reconstruction	8.7 miles	$ 201,500

PA. ROUTE 288

Between Pa. Route 18 and Pa. Route 88 in Ellwood City at the intersection of Fifth Street and Wampum Avenue

Limited Reconstruction	2.8 miles	$ 175,000

PA. ROUTE 88

Between Pa. Route 18 in New Castle, at the intersection of Washington and Jefferson Streets, and Beaver County Line

Limited Reconstruction	.7 mile	$ 12,000
Limited Reconstruction	4.4 miles	201,000
New Construction	3.4 miles	753,000
Limited Reconstruction	1.1 miles	137,000
Limited Reconstruction	.5 mile	25,300

U.S. ROUTE 422

Between Ohio State Line and Pa. Route 18 in New Castle at the intersection of Grant Avenue and Jefferson Street

Limited Reconstruction	1.2 miles	$ 31,000

U.S. ROUTE 19

Between Mercer County Line and Butler County Line

Limited Reconstruction	10.6 miles	$ 430,000

BELL AVENUE in NEW CASTLE

Between U.S. Route 224 and U.S. Route 422

New Construction	.5 mile	$ 132,000

LEBANON COUNTY

U.S. ROUTE 322

Between Dauphin County Line and Lancaster County Line

Limited Reconstruction	.5 mile	$ 55,000
Limited Reconstruction	8.6 miles	616,700
New Construction	3.5 miles	231,000

PA. ROUTE 343

Between Pa. Route 72 at Lickdale and U.S. Route 22 at Fredricksburg

Limited Reconstruction	5.3 miles	$ 120,000

LEG. ROUTE 38031

Between U.S. Route 322 (and also Pa. Route 72) and Leg. Route 208 in Lebanon city at the intersection of Quentin and Colebrook Roads

New Construction	.9 mile	$ 93,500
New Construction	2.2 miles	249,600

PA. ROUTE 72

Between U.S. Route 22 and U.S. Route 422 in Lebanon city at the intersection of Ninth and Cumberland Streets

New Lane Construction	4.2 miles	$ 209,000
Limited Reconstruction	2.1 miles	49,700

U.S. ROUTE 422

In Lebanon city on Cumberland Street, between Fourth and Twelfth Streets

Limited Reconstruction	.7 mile	$ 43,800

LEG. ROUTE 280

In Lebanon city on Quentin Road, between Leg. Route 38031 at Colebrook Road and Pa. Route 72 at Cornwall Pike

New Construction	.3 mile	$ 28,600

LEHIGH COUNTY

U.S. ROUTE 309 Alt.

Between southern junction with U.S. Route 309 at Summit Lawn and northern junction with U.S. Route 309 at Siegersville

New Construction	8.4 miles	$ 1,716,500

U.S. ROUTE 309

Between northern junction with U.S. Route 309 Alt. and Northampton County Line

New Construction	2.0 miles	$ 350,000
Limited Reconstruction	12.0 miles	344,400

PA. ROUTE 29

Between Berks County Line and U.S. Route 22

New Lane Construction	6.0 miles	$ 580,400
Limited Reconstruction	2.4 miles	107,800
Limited Reconstruction	1.7 miles	111,000

PA. ROUTE 29

Between U.S. Route 309 and Schuylkill County Line

Limited Reconstruction	4.8 miles	$ 183,800
New Lane Construction	5.1 miles	536,600
Limited Reconstruction	2.3 miles	96,800

PA. ROUTE 100

Between southern junction with Pa. Route 29 in Upper Milford Township and northern junction with Pa. Route 29 at Pleasant Corners

New Construction	8.6 miles	$ 724,400
New Lane Construction	8.2 miles	788,500

U.S. ROUTE 22
Between Berks County Line and Northampton County Line

New Construction	7.6 miles	$ 1,935,000
New Construction	9.5 miles	9,148,600

PA. ROUTE 145
Between U.S. Route 22 and Northampton County Line

Limited Reconstruction	2.2 miles	$ 88,000

LUZERNE COUNTY

U.S. ROUTE 11
Between Columbia County Line and Lackawanna County Line

New Construction	1.5 miles	$ 319,000
Limited Reconstruction	1.5 miles	77,000
New Lane Construction	8.5 miles	946,000
Limited Reconstruction	10.0 miles	374,000
New Construction	.7 mile	220,000
Limited Reconstruction	2.6 miles	181,500
New Construction	4.0 miles	1,195,000

U.S. ROUTE 309
Between Wyoming County Line and Carbon County Line

Limited Reconstruction	1.0 mile	$ 154,000
New Lane Construction	15.1 miles	1,650,000
New Lane Construction	4.8 miles	336,000

PA. ROUTE 115
Between Columbia County Line and Monroe County Line

Limited Reconstruction	14.9 miles	$ 353,500
New Construction	3.5 miles	572,000

PA. ROUTE 315
Between Lackawanna County Line and Pa. Route 115

New Construction	1.4 miles	$ 680,000

PA. ROUTE 29
Between Carbon County Line and Pa. Route 93

New Lane Construction	1.7 miles	$ 292,600
New Construction	1.4 miles	525,000
New Lane Construction	5.2 miles	572,000
Limited Reconstruction	6.0 miles	286,000

PA. ROUTE 93
Between Columbia County Line and Pa. Route 29

New Construction	.3 mile	$ 49,500
Limited Reconstruction	.5 mile	37,400

PA. ROUTE 924
Between Schuylkill County Line and Pa. Route 29 in Hazleton

Limited Reconstruction	2.1 miles	$ 92,000
New Construction	.5 mile	66,000
Limited Reconstruction	2.0 miles	117,600
New Construction	1.8 miles	345,000

NEW U.S. ROUTE 309 and PA. ROUTE 115
Between new U.S. Route 309 in Wilkes-Barre along Butler Street and present U.S. Route 309 (and also Pa. Route 115) in Kingston, at the intersection of Wyoming Avenue and Union Streets

New Construction	1.9 miles	$ 5,122,000

LYCOMING COUNTY

PA. ROUTE 87
Between U.S. Route 220 and Sullivan County Line

Limited Reconstruction	.6 mile	$ 10,000

PA. ROUTE 405
Between Northumberland County Line and U.S. Route 220

Limited Reconstruction	.4 mile	$ 11,000

U.S. ROUTE 15
Between Union County Line and Tioga County Line

New Lane Construction	1.2 miles	$ 102,000
New Lane Construction	2.4 miles	165,000
New Lane Construction	.5 mile	56,000
New Construction	.2 mile	346,000
Limited Reconstruction	1.5 miles	49,500
New Construction	1.7 miles	198,000
Limited Reconstruction	.9 mile	47,000
New Construction	2.1 miles	715,000
Limited Reconstruction	4.5 miles	187,200
New Lane Construction	1.2 miles	82,000
Limited Reconstruction	5.2 miles	232,100

U.S. ROUTE 220
Between Clinton County Line and Pa. Route 14

New Construction	3.7 miles	$ 565,000
New Lane Construction	8.0 miles	1,104,500

U.S. ROUTE 220
Between Pa. Route 14 and Sullivan County Line

New Construction	2.4 miles	$ 187,000
Limited Reconstruction	1.9 miles	41,000
Limited Reconstruction	2.4 miles	76,000
Limited Reconstruction	.4 mile	15,400

PA. ROUTE 14
Between Northumberland County Line and U.S. Route 220

New Lane Construction	.5 mile	$ 77,000

PA. ROUTE 84
Between U.S. Route 220 and Tioga County Line

Limited Reconstruction	1.7 miles	$ 47,500

PA. ROUTE 442
Between Columbia County Line and Pa. Route 405

New Lane Construction	1.3 miles	$ 181,000

McKEAN COUNTY

U.S. ROUTE 6
Between Warren County Line and U.S. Route 219 in Kane

Limited Reconstruction	3.0 miles	$ 308,000

U.S. ROUTE 6 and 219
Between U.S. Route 219 in Kane and U.S. Route 219 in Lantz Corners

Limited Reconstruction	4.4 miles	$ 201,000

U.S. ROUTE 219
Between U.S. Route 6 and Pa. Route 46 in Bradford city at the intersection of Kendall and Main Streets

Limited Reconstruction	8.0 miles	$ 300,000

Limited Reconstruction	2.3 miles	86,000
New Lane Construction	3.2 miles	326,700
Limited Reconstruction	.9 mile	88,000

PA. ROUTE 59
Between Warren County Line and U.S. Route 219

Limited Reconstruction	15.9 miles	$ 649,000

U.S. ROUTE 219
Between Pa. Route 46 in Bradford city, at the intersection of Kendall and Main Streets, and New York State Line

Limited Reconstruction	.7 mile	$ 23,000
New Lane Construction	1.9 miles	276,000

PA. ROUTE 46
Between U.S. Route 219 and Cameron County Line

Limited Reconstruction	17.2 miles	$ 644,000
Limited Reconstruction	8.4 miles	308,000

PA. ROUTE 446
Between New York State Line and Pa. Route 46

Limited Reconstruction	3.5 miles	$ 198,000
Limited Reconstruction	4.9 miles	181,500

PA. ROUTE 59
Between Leg. Route 42006 and U.S. Route 6

Limited Reconstruction	4.8 miles	$ 230,000

U.S. ROUTE 6
Between Pa. Route 155 in Port Allegheny and Potter County Line

New Construction	4.9 miles	$ 576,000

MERCER COUNTY

U.S. ROUTE 19
Between Lawrence County Line and Crawford County Line

Limited Reconstruction	1.0 mile	$ 47,000
Limited Reconstruction	11.4 miles	340,000
New Construction	.7 mile	179,000
Limited Reconstruction	2.0 miles	49,000
Limited Reconstruction	2.3 miles	67,000

U.S. ROUTE 62
Between Ohio State Line and Venango County Line

New Construction	4.1 miles	$ 2,846,000
Limited Reconstruction	3.1 miles	407,000
New Construction	.6 mile	77,000

U.S. ROUTE 322
Between Crawford County Line and Venango County Line

New Construction	.8 mile	$ 123,000

PA. ROUTE 58
Between Butler County Line and Pa. Route 18 in Greenville

Limited Reconstruction	2.7 miles	$ 128,000
New Construction	1.5 miles	302,000
Limited Reconstruction	7.6 miles	206,000
Limited Reconstruction	7.0 miles	283,000
Limited Reconstruction	.7 mile	20,000

PA. ROUTE 18
Between Lawrence County Line and Crawford County Line

New Construction	.3 mile	$ 64,000
New Construction	.2 mile	20,000
Limited Reconstruction	1.3 miles	35,000
Limited Reconstruction	.4 mile	14,000
Limited Reconstruction	.5 mile	21,000

PA. ROUTE 78
Between Butler County Line and Pa. Route 58

Limited Reconstruction	3.3 miles	$ 70,000

PA. ROUTE 158
Between Lawrence County Line and U.S. Route 62

Limited Reconstruction	8.4 miles	$ 216,000

PA. ROUTE 358
Between Ohio State Line and Pa. Route 18

Limited Reconstruction	4.0 miles	$ 101,000

MIFFLIN COUNTY

U.S. ROUTES 522 and 22
Between Huntingdon County Line and separation of U.S. Routes 522 and 22 in Lewistown

New Lane Construction	19.7 miles	$ 1,288,100

U.S. ROUTE 322
Between U.S. Route 22 in Lewistown and Centre County Line

Limited Reconstruction	.7 mile	$ 14,400
Limited Reconstruction	10.2 miles	499,400

U.S. ROUTE 522
Between U.S. Route 322 and Snyder County Line

Limited Reconstruction	9.5 miles	$ 63,000
New Construction	3.9 miles	320,900

MONROE COUNTY

U.S. ROUTE 611 ALT.
Between U.S. Route 209 and Northampton County Line

New Construction	1.3 miles	$ 426,000
Limited Reconstruction	2.4 miles	77,300
New Construction	.5 mile	150,000
Limited Reconstruction	2.2 miles	72,600

PA. ROUTE 12
Between U.S. Route 611 and Pa. Route 115

New Construction	5.2 miles	$ 1,081,000

PA. ROUTE 115
Between Luzerne County Line and U.S. Route 209

Limited Reconstruction	6.1 miles	$ 126,300
New Construction	.2 mile	19,300
Limited Reconstruction	5.6 miles	100,100
New Lane Construction	2.0 miles	244,600
Limited Reconstruction	6.1 miles	109,600

PA. ROUTE 115
Between U.S. Route 209 and Northampton County Line

Limited Reconstruction	1.2 miles	$ 33,600
New Construction	1.9 miles	657,000

PA. ROUTE 940
Between Pa. Route 115 and U.S. Route 611

Limited Reconstruction	1.3 miles	$ 35,100

U.S. ROUTE 209
Between Carbon County Line and Pike County Line

Limited Reconstruction	11.5 miles	$ 319,000
New Construction	4.5 miles	924,200
Limited Reconstruction	.9 mile	72,000
New Construction	1.1 miles	148,500
Limited Reconstruction	10.5 miles	286,500

MONTGOMERY COUNTY

U.S. ROUTE 422
Between Berks County Line and Philadelphia Line

New Lane Construction	7.6 miles	$ 1,237,000
Limited Reconstruction	2.5 miles	194,000
New Lane Construction	4.1 miles	815,000
Limited Reconstruction	1.1 miles	119,000
New Lane Construction	3.1 miles	618,000
New Construction	.4 mile	192,000
New Lane Construction	2.1 miles	486,000

U.S. ROUTE 422 ALT.
Between U.S. Route 422 and Philadelphia Line

New Construction	.6 mile	$ 300,000
New Construction	1.2 miles	553,300
New Lane Construction	.7 mile	62,000

U.S. ROUTE 202 PARTIALLY RELOCATED
Between Chester County Line and Bucks County Line

New Construction	17.6 miles	$ 7,648,000

PA. ROUTE 29
Between Berks County Line and U.S. Route 422

New Construction	7.4 miles	$ 1,698,000
Limited Reconstruction	1.8 miles	91,600
New Construction	2.4 miles	550,000

U.S. ROUTE 309
Between Bucks County Line and Philadelphia Line

New Construction	14.6 miles	$ 5,805,000

U.S. ROUTE 611
Between Bucks County Line and Philadelphia Line

New Lane Construction	4.9 miles	$ 806,000
New Construction	.5 mile	245,500
New Construction	.3 mile	149,000
Limited Reconstruction	.5 mile	45,000
New Construction	.1 mile	9,000

PA. ROUTE 731
Between U.S. Route 309 and Philadelphia Line

Limited Reconstruction	.1 mile	$ 6,500

PROPOSED NEW ROAD
Between Valley Forge Expressway in Conshohocken and Bucks County Line

New Construction	18.6 miles	$14,793,000

PA. ROUTE 100 RELOCATED
Between old Pa. Route 100 in Upper Pottsgrove Township and Chester County Line

New Construction	4.0 miles	$ 2,598,800

VALLEY FORGE EXPRESSWAY
Between Pa. Turnpike at King of Prussia and Philadelphia at City Line Avenue

New Construction	1.3 miles	$ 590,000
New Construction	7.4 miles	10,992,000

MONTOUR COUNTY

U.S. ROUTE 11
Between Northumberland County Line and Columbia County Line

New Construction	6.7 miles	$ 1,897,500

PA. ROUTE 54
Between Northumberland County Line and U.S. Route 11

Limited Reconstruction	6.2 miles	$ 143,000
Limited Reconstruction	5.8 miles	298,000

NORTHAMPTON COUNTY

U.S. ROUTE 22
Between Lehigh County Line and New Jersey State Line

New Construction	11.3 miles	$ 8,367,400

U.S. ROUTE 611
Between Monroe County Line and U.S. Route 22

New Construction	1.2 miles	$ 355,000
Limited Reconstruction	19.1 miles	877,000

PA. ROUTE 45
Between Pa. Route 145 and U.S. Route 22

Limited Reconstruction	12.5 miles	$ 403,800
New Construction	.1 mile	6,800
Limited Reconstruction	4.8 miles	145,700
New Construction	4.8 miles	949,000

U.S. ROUTE 611 ALT.
Between Bucks County Line and Pa. Route 115

New Construction	7.9 miles	$ 3,185,000
New Construction	.4 mile	32,200
Limited Reconstruction	1.0 mile	36,700

PA. ROUTE 115
Between Monroe County Line and U.S. Route 22

New Construction	7.0 miles	$ 2,049,000

PA. ROUTE 145
Between Lehigh County Line and U.S. Route 309

New Construction	.2 mile	$ 33,000
Limited Reconstruction	2.1 miles	132,700

U.S. ROUTE 309
Between Carbon County Line and Pa. Route 145

New Lane Construction	.4 mile	$ 80,100

PA. ROUTE 512
Between Pa. Route 115 and Leg. Route 159

Limited Reconstruction	5.7 miles	$ 235,600
Limited Reconstruction	6.9 miles	233,900

PA. ROUTE 12
Between Lehigh County Line and Pa. Route 512

New Construction	.3 mile	$ 66,000
Limited Reconstruction	.5 mile	155,500
New Construction	1.0 mile	335,000

NORTHUMBERLAND COUNTY

PA. ROUTE 14
Between Dauphin County Line and Lycoming County Line

Limited Reconstruction	5.9 miles	$ 561,000
Limited Reconstruction	3.2 miles	231,000
New Construction	.7 mile	82,500
Limited Reconstruction	8.2 miles	543,400
New Lane Construction	1.9 miles	181,500
New Construction	3.5 miles	1,169,000
Limited Reconstruction	2.9 miles	88,000
New Construction	8.3 miles	1,771,000
New Construction	.8 mile	187,000
Limited Reconstruction	5.5 miles	277,000

PA. ROUTE 45
Between Susquehanna River Bridge and Pa. Route 14

Limited Reconstruction	.1 mile	$ 6,500

U.S. ROUTE 11
Between Montour County Line and Pa. Route 14

New Lane Construction	9.7 miles	$ 930,000

U.S. ROUTE 122 RELOCATED
Between Columbia County Line and Pa. Route 14

Limited Reconstruction	3.1 miles	$ 187,000
New Construction	10.7 miles	2,595,000

PERRY COUNTY

U.S. ROUTES 11 and 15
Between Cumberland County Line and Juniata County Line

New Lane Construction	7.1 miles	$ 1,378,700
New Construction	2.4 miles	879,000
New Construction	13.7 miles	3,099,400

U.S. ROUTES 22 and 322
Between Juniata County Line and U.S. Route 11 (and also U.S. Route 15)

New Lane Construction	5.1 miles	$ 928,000
New Construction	1.7 miles	513,900
New Lane Construction	8.0 miles	1,847,400

PA. ROUTE 34
Between Cumberland County Line and U.S. Route 22 (and also U.S. Route 322)

Limited Reconstruction	5.2 miles	$ 147,900
Limited Reconstruction	3.2 miles	74,500
New Construction	.4 mile	50,300
New Construction	.5 mile	68,200
New Construction	1.2 miles	163,700

PA. ROUTE 274
Between U.S. Route 11 (and also U.S. Route 15) and Pa. Route 34

New Construction	.4 mile	$ 40,200
Limited Reconstruction	4.7 miles	289,100

PHILADELPHIA COUNTY

LEG. ROUTE 67023
Between 80th Street and Penrose Avenue, and Moyamensing and Oregon Avenues

New Construction	.6 mile	$ 550,000

LEG. ROUTE 67025
Between Oregon and Moyamensing Avenues, and Norris and Aramingo Streets

Limited Reconstruction	.9 mile	$ 75,000
New Construction	5.6 miles	36,000,000

LEG. ROUTE 67047
Between Norris and Aramingo Streets, and Harrison Avenue and Roosevelt Boulevard

Limited Reconstruction	5.2 miles	$ 4,700,000

LEVICK STREET
Between Tacony Street and Roosevelt Boulevard

New Construction	.1 mile	$ 997,000

LEG. ROUTE 67057
Schuylkill Expressway between University Avenue and 34th Street, and City Avenue and River Road

New Construction	6.2 miles	$37,980,600

LEG. ROUTE 67045
On Vine Street, between Schuylkill Expressway and Fifth Street

New Construction	1.2 miles	$11,343,600

LEG. ROUTE 67005
On Fifth Street, between Chestnut and Race Streets

New Construction	.4 mile	$ 6,130,000

ROOSEVELT BOULEVARD
Between Schuylkill Expressway and Bucks County Line

New Construction	9.8 miles	$30,247,200
New Construction	4.3 miles	935,000

STENTON AVENUE
Between Bethlehem Pike and Broad Street

New Construction	3.6 miles	$ 1,601,000

GODFREY AVENUE
Between Broad Street and Rising Sun Avenue

New Construction	.4 mile	$ 182,000
New Construction	.7 mile	1,955,000

WALNUT LANE
Between Ridge Avenue and Henry Avenue

New Construction	.2 mile	$ 78,000

COTTMAN AVENUE
Between Oxford Avenue and Roosevelt Boulevard

Limited Reconstruction	1.3 miles	$ 89,000
New Lane Construction	.8 mile	185,000

KEYSTONE and ROBBINS STREETS
Between Roosevelt Boulevard and Levick Street at Keystone Street

Limited Reconstruction	1.7 miles	$ 178,000

PIKE COUNTY

U.S. ROUTE 6
Between Wayne County Line and New York State Line

Limited Reconstruction	1.3 miles	$ 52,000
Limited Reconstruction	14.6 miles	589,000
New Lane Construction	1.0 mile	125,000
Limited Reconstruction	.4 mile	3,500

U.S. ROUTE 209
Between New Jersey State Line and U.S. Route 206

Limited Reconstruction	.5 mile	$ 15,300
Limited Reconstruction	.2 mile	11,500
Limited Reconstruction	.4 mile	14,100
Limited Reconstruction	.5 mile	19,800
Limited Reconstruction	.6 mile	24,700
Limited Reconstruction	1.2 miles	35,200

U.S. ROUTE 206
Between New Jersey State Line and U.S. Route 209

New Construction	.4 mile	$ 29,700

POTTER COUNTY

U.S. ROUTE 6
Between McKean County Line and Tioga County Line

Limited Reconstruction	4.9 miles	$ 101,500
Limited Reconstruction	4.3 miles	126,000
New Lane Construction	.9 mile	187,000

PA. ROUTE 449
Between U.S. Route 6 and New York State Line

Limited Reconstruction	1.6 miles	$ 45,000
Limited Reconstruction	2.3 miles	59,400

SCHUYLKILL COUNTY

U.S. ROUTE 209
Between Lebanon County Line and Carbon County Line

New Lane Construction	.8 mile	$ 51,200
Limited Reconstruction	4.5 miles	143,000
Limited Reconstruction	.9 mile	49,500
Limited Reconstruction	1.1 miles	55,000

PA. ROUTE 443
Between Lebanon County Line and Pa. Route 125

Limited Reconstruction	6.5 miles	$ 216,000

PA. ROUTE 83
Between Berks County Line and U.S. Route 122

Limited Reconstruction	9.4 miles	$ 240,800

U.S. ROUTE 122
Between Berks County Line and Columbia County Line

New Construction	1.9 miles	$ 1,085,000
New Construction	.2 mile	120,000
New Lane Construction	3.3 miles	864,000
Limited Reconstruction	.3 mile	13,800
Limited Reconstruction	.6 mile	35,200
New Lane Construction	4.0 miles	2,258,000
New Construction	.1 mile	182,700
Limited Reconstruction	6.3 miles	218,100

PA. ROUTE 924
Between Luzerne County Line and U.S. Route 122 (and also Pa. Route 45)

Limited Reconstruction	9.6 miles	$ 280,600
Limited Reconstruction	.1 mile	9,100
Limited Reconstruction	.4 mile	17,300

PA. ROUTE 45
Between U.S. Route 122 (and also Pa. Route 45) and Pa. Route 29

Limited Reconstruction	7.2 miles	$ 266,400

PA. ROUTE 29
Between Luzerne County Line and Lehigh County Line

New Construction	3.2 miles	$ 1,106,000
New Lane Construction	.9 mile	116,700
New Lane Construction	1.5 miles	153,300
Limited Reconstruction	6.9 miles	280,300

PA. ROUTE 895
Between U.S. Route 122 and Pa. Route 443

Limited Reconstruction	4.4 miles	$ 180,400

PA. ROUTE 443
Between Pa. Route 895 and Pa. Route 29

Limited Reconstruction	3.0 miles	$ 133,100

SNYDER COUNTY

U.S. ROUTES 15 and 11
Between the junction of U.S. Routes 15 and 11 and Juniata County Line

New Construction	6.8 miles	$ 1,089,000

U.S. ROUTE 522
Between Mifflin County Line and U.S. Route 11 (and also U.S. ROUTE 15

New Construction	2.7 miles	$ 528,000

PA. ROUTE 104
Between Juniata County Line and Union County Line

Limited Reconstruction	5.9 miles	$ 68,000

SOMERSET COUNTY

U.S. ROUTE 219
Between Cambria County Line and Pa. Route 31

Limited Reconstruction	11.8 miles	$ 874,900
New Construction	5.4 miles	818,700
Limited Reconstruction	.4 mile	17,300

U.S. ROUTE 219
Between Pa. Route 31 and Maryland State Line

Limited Reconstruction	16.5 miles	$ 823,700
New Construction	.6 mile	73,500
Limited Reconstruction	5.3 miles	268,500
New Construction	2.0 miles	324,000

PA. ROUTE 271
Between Cambria County Line and Westmoreland County Line

Limited Reconstruction	.9 mile	$ 59,400

U.S. ROUTE 30
Between Westmoreland County Line and Bedford County Line

Limited Reconstruction	7.1 miles	$ 244,400
New Construction	8.7 miles	1,092,500

PA. ROUTE 56
Between Cambria County Line and Bedford County Line

New Construction	.4 mile	$ 179,300
Limited Reconstruction	2.2 miles	208,000
Limited Reconstruction	4.0 miles	282,200

PA. ROUTE 31
Between Westmoreland County Line and U.S. Route 219

Limited Reconstruction	1.1 miles	$ 36,400
New Construction	2.1 miles	314,400
New Construction	1.3 miles	194,700
Limited Reconstruction	.9 mile	41,500

U.S. ROUTE 219 and PA. ROUTE 31
Between the junction of U.S. Route 219 and Pa. Route 31 and their separation near Pa. Route 160

Limited Reconstruction	.4 mile	$ 17,000
New Construction	.5 mile	74,000
New Construction	4.8 miles	615,100

PA. ROUTE 653
Between Fayette County Line and Pa. Route 53

Limited Reconstruction	4.2 miles	$ 116,600

U.S. ROUTE 40
Between Fayette County Line and Maryland State Line

Limited Reconstruction	1.3 miles	$ 58,300

PA. ROUTE 53
Between U.S. Route 40 and U.S. Route 219

Limited Reconstruction	7.5 miles	$ 354,300
Limited Reconstruction	4.0 miles	184,100
New Construction	.5 mile	37,500
Limited Reconstruction	4.2 miles	201,600

SULLIVAN COUNTY

U.S. ROUTE 220
Between Lycoming County Line and Bradford County Line

Limited Reconstruction	1.8 miles	$ 30,000

PA. ROUTE 87
Between U.S. Route 220 and Wyoming County Line

New Construction	.2 mile	$ 13,600
Limited Reconstruction	1.8 miles	76,000

SUSQUEHANNA COUNTY

U.S. ROUTE 106
Between Bradford County Line and U.S. Route 11

Limited Reconstruction	5.0 miles	$ 100,200
Limited Reconstruction	.4 mile	30,800
Limited Reconstruction	4.6 miles	162,000

U.S. ROUTE 106
Between U.S. Route 11 and Lackawanna County Line

Limited Reconstruction	9.5 miles	$ 342,100

PA. ROUTE 29
Between Wyoming County Line and U.S. Route 106

Limited Reconstruction	3.1 miles	$ 115,500

PA. ROUTE 29
Between U.S. Route 106 and New York State Line

Limited Reconstruction	6.4 miles	$ 107,800

U.S. ROUTE 11
Between U.S. Route 106 and New York State Line

Limited Reconstruction	.4 mile	$ 20,900
Limited Reconstruction	1.5 miles	61,600

TIOGA COUNTY

U.S. ROUTE 6
Between Potter County Line and Bradford County Line

Limited Reconstruction	1.7 miles	$ 44,000
Limited Reconstruction	3.0 miles	90,000
Limited Reconstruction	1.1 miles	53,000

U.S. ROUTE 15
Between Lycoming County Line and New York State Line

Limited Reconstruction	4.2 miles	$ 164,000
Limited Reconstruction	1.8 miles	71,000
Limited Reconstruction	.4 mile	18,700
Limited Reconstruction	8.6 miles	308,500

PA. ROUTE 84
Between Lycoming County Line and U.S. Route 6

Limited Reconstruction	.2 mile	$ 6,200
New Construction	.8 mile	108,000
Limited Reconstruction	5.7 miles	226,800

Limited Reconstruction	2.3 miles	45,000
Limited Reconstruction	1.3 miles	27,300
New Lane Construction	.2 mile	18,000

UNION COUNTY

U.S. ROUTE 15
Between Snyder County Line and Lycoming County Line

New Lane Construction	18.4 miles	$ 2,249,000

PA. ROUTE 45
Between Centre County Line and Northumberland County Line

Limited Reconstruction	4.3 miles	$ 121,000
Limited Reconstruction	12.6 miles	528,000

VENANGO COUNTY

U.S. ROUTE 322
Between Mercer County Line and Franklin at the intersection of Thirteenth and Liberty Streets

New Construction	3.3 miles	$ 555,000
Limited Reconstruction	2.4 miles	94,000
New Construction	.9 mile	152,000
Limited Reconstruction	.5 mile	51,000

U.S. ROUTE 322
Between Franklin, at the intersection of Thirteenth and Liberty Streets, and Clarion County Line

Limited Reconstruction	.9 mile	$ 51,000
New Lane Construction	1.2 miles	148,000
Limited Reconstruction	1.9 miles	73,000
New Construction	7.2 miles	1,260,000

U.S. ROUTE 62
Between Mercer County and U.S. Route 322 in Franklin at the intersection of Thirteenth and Liberty Streets

New Lane Construction	1.3 miles	$ 266,000
New Lane Construction	4.8 miles	1,074,000

U.S. ROUTE 62
Between U.S. Route 322 in Franklin, at the intersection of Eleventh and Liberty Streets, and Oil City at the intersection of Petroleum and Main Streets

New Lane Construction	.1 mile	$ 11,000
New Construction	7.2 miles	3,048,000
Limited Reconstruction	.3 mile	68,000

U.S. ROUTE 62
Between Oil City, at the intersection of Petroleum and Main Streets, and Forest County Line

New Construction	.2 mile	$ 75,000

PA. ROUTE 8
Between Butler County Line and U.S. Route 62

Limited Reconstruction	1.3 miles	$ 69,000
Limited Reconstruction	1.0 mile	64,000
Limited Reconstruction	.5 mile	22,000
Limited Reconstruction	4.1 miles	223,000

PA. ROUTE 38
Between Butler County Line and first entrance into Clarion County at Emlenton

Limited Reconstruction	.3 mile	$ 5,000
New Construction	2.3 miles	467,000

PA. ROUTE 38
Between northern entrance from Clarion County and first exit into Clarion County

Limited Reconstruction	1.0 mile	$ 27,500

PA. ROUTE 8
Between Crawford County Line and Oil City at the intersection of Main and Petroleum Streets

New Construction	1.7 miles	$ 286,000
Limited Reconstruction	1.8 miles	58,000
Limited Reconstruction	1.2 miles	36,000

PA. ROUTE 27
Between Crawford County Line and Warren County Line

New Construction	.6 mile	$ 77,000
Limited Reconstruction	1.9 miles	87,000

PA. ROUTE 227
Between Pa. Route 8 and Pa. Route 27

Limited Reconstruction	11.7 miles	$ 320,000

WARREN COUNTY

U.S. ROUTE 6
Between Erie County Line and Warren borough, at the intersection of Penn Avenue and Beech Street

Limited Reconstruction	19.5 miles	$ 650,000
New Construction	7.7 miles	2,905,000

U.S. ROUTE 6
Between Warren borough, at the intersection of Penn Avenue and Beech Street, and McKean County Line

Limited Reconstruction	1.3 miles	$ 44,000
New Construction	3.3 miles	522,000

PA. ROUTE 27
Between Venango County Line and U.S. Route 6

Limited Reconstruction	2.2 miles	$ 56,000
Limited Reconstruction	6.3 miles	160,000
Limited Reconstruction	1.1 miles	27,500
Limited Reconstruction	.4 mile	23,000

U.S. ROUTE 62
Between Forest County Line and U.S. Route 6

Limited Reconstruction	21.0 miles	$ 901.000

U.S. ROUTE 62
Between Warren borough, at the intersection of Market and West Water Streets, and New York State Line

Limited Reconstruction	.6 mile	$ 22,000
Limited Reconstruction	6.8 miles	176,000

PA. ROUTE 59
Between McKean County Line and U.S. Route 6

Limited Reconstruction	2.1 miles	$ 71,000

WASHINGTON COUNTY

U.S. ROUTE 40

Between West Virginia State Line and U.S. Route 40 By-Pass

Limited Reconstruction	5.8 miles	$ 263,100
New Lane Construction	1.7 miles	260,600

U.S. ROUTE 40 BY-PASS

Between U.S. Route 40 at Washington city Line and U.S. Route 40 (and also U.S. Route 19) at Pa. Route 31

New Construction	4.3 miles	$ 1,840,300

U.S. ROUTE 40

Between U.S. Route 19 and Fayette County Line

Limited Reconstruction	4.7 miles	$ 129,700
New Construction	1.2 miles	294,100
Limited Reconstruction	2.6 miles	81,900
Limited Reconstruction	2.7 miles	87,700

U.S. ROUTE 22

Between West Virginia State Line and Allegheny County Line

New Lane Construction	13.2 miles	$ 1,490,000

U.S. ROUTE 19

Between Greene County Line and U.S. Route 40 south of Washington city

Limited Reconstruction	11.6 miles	$ 1,011,900

U.S. ROUTE 19

Between U.S. Route 40 in Washington city and Allegheny County Line

Limited Reconstruction	7.3 miles	$ 360,900
New Lane Construction	2.9 miles	370,600

PA. ROUTE 31

Between West Virginia State Line and Westmoreland County Line

Limited Reconstruction	10.7 miles	$ 578,300
Limited Reconstruction	.6 mile	42,200
Limited Reconstruction	.9 mile	67,900
New Construction	11.2 miles	4,560,300
New Construction	1.0 mile	459,200

PA. ROUTE 18

Between Beaver County Line and Pa. Route 31

Limited Reconstruction	2.8 miles	$ 171,600
Limited Reconstruction	6.2 miles	305,900
New Construction	1.1 miles	300,000
Limited Reconstruction	7.7 miles	559,700

PA. ROUTE 519

Between Allegheny County Line and U.S. Route 19

Limited Reconstruction	6.4 miles	$ 504,500

PA. ROUTE 88

Between Fayette County Line and Allegheny County Line

New Construction	1.7 miles	$ 384,500
Limited Reconstruction	1.0 mile	52,100
New Construction	.7 mile	166,000
Limited Reconstruction	9.2 miles	564,300
Limited Reconstruction	2.0 miles	182,000
New Construction	2.6 miles	487,200
Limited Reconstruction	1.1 miles	47,300
New Construction	.7 mile	444,100
New Lane Construction	.9 mile	145,000
New Construction	.7 mile	349,800
Limited Reconstruction	1.0 mile	25,000
New Construction	1.0 mile	334,600
Limited Reconstruction	2.5 miles	123,500
New Construction	1.8 miles	425,500
Limited Reconstruction	2.7 miles	230,100
New Construction	.5 mile	338,400
Limited Reconstruction	3.4 miles	168,500

WAYNE COUNTY

PA. ROUTE 90

Between New York State Line and U.S. Route 6 (and also U.S. Route 106)

New Construction	3.2 miles	$ 292,000

U.S. ROUTE 6

Between Pike County Line and U.S. Route 106

Limited Reconstruction	5.1 miles	$ 293,000
Limited Reconstruction	.1 mile	6,000

U.S. ROUTES 6 and 106

Between Lackawanna County Line and separation of U.S. Routes 6 and 106

New Lane Construction	3.2 miles	$ 341,400
Limited Reconstruction	2.4 miles	44,000
Limited Reconstruction	2.0 miles	40,200
Limited Reconstruction	2.1 miles	81,000

PA. ROUTE 590

Between Lackawanna County Line and U.S. Route 6

Limited Reconstruction	15.4 miles	$ 320,900

WESTMORELAND COUNTY

U.S. ROUTE 30

Between Allegheny County Line and Greensburg at the intersection of West Otterman and West Pittsburgh Streets

Limited Reconstruction	4.5 miles	$ 181,500
Limited Reconstruction	4.8 miles	451,000

U.S. ROUTE 30

Westbound traffic in Greensburg on Otterman Street

Limited Reconstruction	.5 mile	$ 18,600

U.S. ROUTE 30

Eastbound traffic in Greensburg on Pittsburgh Street between West Otterman and East Otterman Streets

Limited Reconstruction	.2 mile	$ 8,800
Limited Reconstruction	.2 mile	15,600

U.S. ROUTE 30
Between Greensburg, at the intersection of East Pittsburgh and East Otterman Streets, and Somerset County Line

Limited Reconstruction	.4 mile	$ 17,800
New Construction	5.5 miles	2,605,200
New Lane Construction	.5 mile	133,000
New Construction	.9 mile	428,000
New Lane Construction	.3 mile	73,000
New Construction	.3 mile	127,000
New Lane Construction	6.3 miles	1,399,000
New Construction	.9 mile	431,000
New Lane Construction	4.1 miles	1,113,000
New Construction	6.5 miles	1,986,000

PA. ROUTE 356
Between Butler County Line and Pa. Route 56 (and also Pa. Route 256)

New Construction	.2 mile	$ 39,600
Limited Reconstruction	5.3 miles	172,000

PA. ROUTE 56
Between Pa. Route 356 (and also Pa. Route 256) and Pa. Route 466

Limited Reconstruction	1.5 miles	$ 99,000

PA. ROUTE 466
Between Pa. Route 56 and Pa. Route 66

Limited Reconstruction	3.3 miles	$ 166,000

PA. ROUTE 66
Between Pa. Route 466 and U.S. Route 30 in Greensburg at the intersection of Main and Pittsburgh Streets

New Construction	8.1 miles	$ 1,479,600

PA. ROUTE 906
Between Allegheny County Line and Monessen at the intersection of Manown Street and East Schoonmaker Avenue

New Construction	1.5 miles	$ 326,000
Limited Reconstruction	.2 mile	7,200

PA. ROUTE 906
Northbound traffic in Monessen on Schoonmaker Avenue between Manown and Twelfth Streets

Limited Reconstruction	1.2 miles	$ 48,400

PA. ROUTE 906
Southbound traffic in Monessen on Donner Avenue between Manown Avenue and Twelfth Street

Limited Reconstruction	1.7 miles	$ 57,400

PA. ROUTE 906
Between Monessen, at the intersection of Schoonmaker Avenue and Twelfth Street, and new Pa. Route 31

Limited Reconstruction	.5 mile	$ 28,700
New Construction	2.0 miles	448,000

U.S. ROUTE 22
Between Allegheny County Line and Indiana County Line

New Lane Construction	2.2 miles	$ 283,000
New Construction	8.1 miles	3,435,000

U.S. ROUTE 119
Between Fayette County Line and U.S. Route 30 in Greensburg at the intersection of Main and Pittsburgh Streets

New Construction	9.2 miles	$ 1,681,000
New Lane Construction	1.0 mile	210,000
Limited Reconstruction	.5 mile	20,700

U.S. ROUTE 119
Between U.S. Route 30 in Greensburg, at the intersection of East Pittsburgh Street and Arch Avenue, and U.S. Route 22

Limited Reconstruction	.3 mile	$ 13,400
New Lane Construction	2.7 miles	209,000
Limited Reconstruction	5.4 miles	218,400

PA. ROUTE 31
Between Allegheny County Line and Somerset County Line

Limited Reconstruction	1.7 miles	$ 94,600
Limited Reconstruction	4.2 miles	296,000
New Construction	3.5 miles	735,000
Limited Reconstruction	1.0 mile	46,000
Limited Reconstruction	3.2 miles	155,000

PA. ROUTE 711
Between Indiana County Line and Pa. Route 271

Limited Reconstruction	.5 mile	$ 22,900
New Construction	.6 mile	82,000
Limited Reconstruction	3.6 miles	198,000
New Construction	.3 mile	59,000
Limited Reconstruction	8.7 miles	572,000

PA. ROUTE 711
Between U.S. Route 30 (and also Pa. Route 271) and Pa. Route 31 in Donegal

Limited Reconstruction	1.5 miles	$ 101,000
Limited Reconstruction	1.3 miles	77,700
Limited Reconstruction	4.8 miles	217,000

PA. ROUTE 271
Between Somerset County Line and U.S. Route 30

Limited Reconstruction	10.2 miles	$ 920,300

PA. ROUTE 51
Between Allegheny County Line and Fayette County Line

New Construction	7.3 miles	$ 2,162,000

PA. ROUTE 80
Between Allegheny County Line and Indiana County Line

New Construction	.7 mile	$ 178,000
Limited Reconstruction	12.9 miles	595,600
New Construction	1.9 miles	344,000

PA. ROUTE 256
Between Armstrong County Line and Pa. Route 56

New Construction	1.3 miles	$ 330,900

PA. ROUTE 711
Between Fayette County Line and Pa. Route 71

New Construction	.5 mile	$ 51,000

NEW PA. ROUTE 31
Between U.S. Route 119 and Pa. Route 906

New Construction	17.0 miles	$ 8,732,000

NEW KENSINGTON BY-PASS
Between Allegheny County Line at new bridge to Tarentum and Pa. Route 909 (and also Pa. Route 366)

Limited Reconstruction	.1 mile	$ 3,400
New Construction	2.5 miles	796,000

WYOMING COUNTY

U.S. ROUTE 6
Between Bradford County Line and Pa. Route 92 east of Tunkhannock

New Lane Construction	2.1 miles	$ 282,200
New Lane Construction	2.9 miles	262,000
New Lane Construction	1.1 miles	133,700

U.S. ROUTE 309
Between Luzerne County Line and U.S. Route 6 in Tunkhannock

New Lane Construction	13.2 miles	$ 905,000

NEW U.S. ROUTE 6
Between Pa. Route 92 in Dixon and U.S. Route 11 in Factoryville

New Construction	5.8 miles	$ 1,400,000

YORK COUNTY

U.S. ROUTE 111
Between Cumberland County Line and Maryland State Line

New Construction	.5 mile	$ 171,000
New Construction	19.0 miles	9,833,800
Limited Reconstruction	1.6 miles	92,500
New Construction	16.9 miles	7,529,000

U.S. ROUTE 30
Between Adams County Line and Lancaster County Line

Limited Reconstruction	15.7 miles	$ 650,200
Limited Reconstruction	9.9 miles	407,100

U.S. ROUTE 15
Between Adams County Line and Cumberland County Line

New Construction	2.0 miles	$ 323,900
New Lane Construction	2.3 miles	246,000
New Construction	4.5 miles	926,900

PA. ROUTE 116
Between Pa. Route 94 in Hanover and U.S. Route 30

Limited Reconstruction	1.7 miles	$ 63,800
New Construction	.5 mile	43,450
Limited Reconstruction	.4 mile	17,400

PA. ROUTE 94
Between Maryland State Line and Adams County Line

Limited Reconstruction	5.2 miles	$ 366,500
Limited Reconstruction	2.8 miles	114,200

PA. ROUTE 194
Between Adams County Line and Pa. Route 116 in Hanover

New Construction	.2 mile	$ 9,900
Limited Reconstruction	.4 mile	13,000

PROPOSED IMPROVEMENTS
INTERCOMMUNITY ROADS

by Counties

Appendix II

PROPOSED IMPROVEMENTS INTERCOMMUNITY ROADS

ADAMS COUNTY

PA. ROUTE 71
Between Maryland State Line and U.S. Route 140 in Littlestown

Limited Reconstruction	1.0 mile	$ 33,000
New Construction	1.7 miles	206,800

PA. ROUTE 134
Between Maryland State Line and U.S. Route 15 in Gettysburg

Limited Reconstruction	1.9 miles	$ 101,800

PA. ROUTE 116
Between Pa. Route 16 in Zora and U.S. Route 15 in Gettysburg

New Construction	8.8 miles	$ 740,600
Limited Reconstruction	.5 mile	20,000
Limited Reconstruction	.2 mile	16,700

LEG. ROUTE 01010
Between Pa. Route 116 and Leg. Route 01075

Limited Reconstruction	6.8 miles	$ 315,700
Limited Reconstruction	1.3 miles	68,800

LEG. ROUTE 01006
Between Pa. Route 34 in Gettysburg and Pa. Route 394 in Table Rock

Limited Reconstruction	3.3 miles	$ 117,800

LEG. ROUTE 889
Between U.S. Route 15 (and also Pa. Route 34) in Gettysburg and Leg. Route 01002 in Mummasburg

Limited Reconstruction	.3 mile	$ 14,200
Limited Reconstruction	3.3 miles	154,000

LEG. ROUTE 01002
Between Leg. Route 889 in Mummasburg and Pa. Route 234 in Arendtsville

Limited Reconstruction	2.6 miles	$ 152,900

PA. ROUTE 234
Between Leg. Route 342-B in Arendtsville and U.S. Route 30

Limited Reconstruction	1.9 miles	$ 130,300
Limited Reconstruction	1.2 miles	37,300

PA. ROUTE 234
Between Arendtsville and York County Line

New Construction	2.2 miles	$ 156,600
New Construction	.3 mile	34,100
Limited Reconstruction	8.7 miles	387,600
New Construction	.5 mile	72,100

PA. ROUTE 194
Between the southern Abbottstown Borough Line and York County Line north of East Berlin

New Construction	.3 mile	$ 25,200
New Construction	.2 mile	19,300
Limited Reconstruction	2.8 miles	167,200
Limited Reconstruction	.3 mile	18,200

PA. ROUTE 394
Between Pa. Route 234 east of Hampton and Pa. Route 34 in Biglerville

Limited Reconstruction	5.0 miles	$ 172,700
Limited Reconstruction	4.3 miles	138,700

PA. ROUTE 334
Between Pa. Route 234 and Pa. Route 34 south of Idaville

Limited Reconstruction	1.2 miles	$ 57,600

PA. ROUTE 01047
Between Pa. Route 34 in Idaville and Pa. Route 94 in York Springs

Limited Reconstruction	4.9 miles	$ 238,800

PA. ROUTE 116
Between U.S. Route 30 in Gettysburg and York County Line

Limited Reconstruction	2.2 miles	$ 130,400

ALLEGHENY COUNTY

PA. ROUTE 980
Between U.S. Route 22 near Washington County Line and old U.S. Route 30 at Clinton

New Construction	.7 mile	$ 30,500
Limited Reconstruction	4.3 miles	120,000

OLD PA. ROUTE 51
Between Beaver County Line, through Carnot, and new Pa. Route 51 at Stoops Ferry

Limited Reconstruction	4.1 miles	$ 107,000
New Construction	1.9 miles	400,000

COUNTY ROAD, BEAVER GRADE, CORAOPOLIS AND CARNOT ROAD, LEG. ROUTES A-2386 AND 02062, MC-KEES ROCKS AND FOREST GROVE ROAD, COUNTY ROAD, PIKE ROAD, MIDDLETOWN ROAD, and CHARTIERS AVENUE in MCKEES ROCKS
Between Airport Parkway and McKees Rocks

Limited Reconstruction	2.1 miles	$ 47,000
Limited Reconstruction	.8 mile	27,500

BIG SEWICKLEY CREEK ROAD

Between Pa. Route 88 in Leetsdale and Beaver County Line

New Construction	.3 mile	$	41,000
Limited Reconstruction	.6 mile		23,000
New Lane Construction	1.4 miles		162,000

LEG. ROUTES 02115 EXTENDED, 02115, and 02219; FERN HOLLOW ROAD, DUFF CITY AND CAMPMEETING ROAD

Between Pa. Route 88 in Leetsdale, through Edgeworth, and Leg. Route A-3755 south of Duff City

New Construction	.2 mile	$	10,400
Limited Reconstruction	.9 mile		29,000

BLACKBURN ROAD in SEWICKLEY, BLACKBURN ROAD, and LOWRIES RUN AND NEBO ROAD

Between Pa. Route 88 in Sewickley and old U.S. Route 19 in North Hills

Limited Reconstruction	2.2 miles	$	46,000
Limited Reconstruction	.8 mile		17,000

LOWRIES RUN AND ROCHESTER ROAD

Between Bayne and Lowries Run And Nebo Road

Limited Reconstruction	1.3 miles	$	26,000
Limited Reconstruction	2.2 miles		38,000

T-615

Between Ingomar and Lowries Run And Rochester Road

Limited Reconstruction	.2 mile	$	7,700

OLD U.S. ROUTE 19

Between Pittsburgh, at the intersection of California Avenue and Chateau Street, and U.S. Route 19 relocated

Limited Reconstruction	1.5 miles	$	22,100

BAYNE AND WEXFORD ROAD, LEG. ROUTE 02106, GIBSONIA ROAD, and FISHER ROAD

Between Bayne and Pa. Route 8

Limited Reconstruction	.6 mile	$	9,900
Limited Reconstruction	2.7 miles		65,000
Limited Reconstruction	1.0 mile		8,800

LEG. ROUTE 02139

Between Butler County Line and Warrendale Road

Limited Reconstruction	.4 mile	$	15,000

BAKERSTOWN AND VALENCIA ROAD, and BAKERSTOWN AND CULMERVILLE ROAD

Between Babcock Boulevard and Culmerville

Limited Reconstruction	3.5 miles	$	31,000
Limited Reconstruction	3.7 miles		40,000
Limited Reconstruction	.6 mile		7,500

BABCOCK BOULEVARD

Between Butler County Line and U.S. Route 19 relocated

Limited Reconstruction	5.1 miles	$	80,000

LEG. ROUTE 02181

Between old U.S. Route 19 and Babcock Boulevard

Limited Reconstruction	.2 mile	$	4,400
New Construction	.9 mile		40,000

WILDWOOD ROAD

Between Babcock Boulevard and Talley Cavey

Limited Reconstruction	2.0 miles	$	41,000

PA. ROUTE 910

Between Pa. Route 28 and Pa. Route 8

Limited Reconstruction	1.1 miles	$	44,000
Limited Reconstruction	2.1 miles		51,000

LEG. ROUTES 02244, A-3758, A-3757, and A-3758; and KITTANNING AND DORSEYVILLE ROAD

Between Pa. Route 28 at Harmarville at Pa. Route 8 north of Allison Park

Limited Reconstruction	.4 mile	$	11,000

LEG. ROUTE 02248

Between Pa. Route 8 north of Etna and Culmerville

Limited Reconstruction	1.1 miles	$	15,000
Limited Reconstruction	1.7 miles		22,000
Limited Reconstruction	.3 mile		4,200
Limited Reconstruction	2.6 miles		30,800

LEG. ROUTE 805

Between Pa. Route 8 in Millvale, at the intersection of Evergreen Avenue and East Ohio Street, and U.S. Route 19 relocated in Pittsburgh at the intersection of Ivory Avenue and McKnight Road

New Construction	.6 mile	$	86,800

LEG. ROUTE 02150

Between Pa. Route 910 and Bairdsford

Limited Reconstruction	1.7 miles	$	20,000

BAIRDSFORD ROAD

Between Leg. Route 02248, and Bakerstown And Culmerville Road

Limited Reconstruction	3.6 miles	$	48,300

LITTLE DEER CREEK VALLEY ROAD

Between Pa. Route 28 in Acmetonia and Culmerville

Limited Reconstruction	.2 mile	$	6,600
Limited Reconstruction	1.9 miles		24,000

BULL CREEK ROAD

Between Pa. Route 28 in Tarentum and Millerstown

Limited Reconstruction	.2 mile	$	7,400

LEG. ROUTE 02188

Between Little Deer Creek Valley Road nortn of Russellton and Middletown

New Construction	.1 mile	$	4,400

CRAWFORD RUN ROAD, LEG. ROUTE 02171, and CREIGHTON AND RUSSELLTON ROAD

Between Pa. Route 28 at Hites and Little Deer Creek Valley Road at Russellton

New Construction	1.2 miles	$	37,000

LEG. ROUTE 02237, UNITY AND TRESTLE ROAD, MONROEVILLE AND TRESTLE ROAD, LEG. ROUTE 02105, and MOSS SIDE BOULEVARD

Between Westmoreland County Line near Logans Ferry, through Unity, and Pitcairn-Wall Bridge

Limited Reconstruction	3.1 miles	$ 89,000
Limited Reconstruction	2.8 miles	73,000
Limited Reconstruction	4.1 miles	81,000

OLD PA. ROUTE 80

Between Westmoreland County Line and old U.S. Route 22 (and also U.S. Route 30) in Pittsburgh at the intersection of Wilkins and Penn Avenues

Limited Reconstruction	3.3 miles	$ 94,000
New Construction	3.7 miles	933,000
Limited Reconstruction	4.3 miles	797,000

LEG. ROUTE 02237, COUNTY ROAD, HULTON ROAD, AND LEG. ROUTE 02236

Between Pa. Route 80, through North Bessemer and Haffey, and Oakmont-Harmarville Bridge

Limited Reconstruction	.3 mile	$ 4,400
Limited Reconstruction	1.3 miles	11,000
New Construction	.2 mile	64,000

PA. ROUTE 180

Between Westmoreland County Line and old Pa. Route 80, including spur through East Pittsburgh and North Braddock to U.S. Route 30 in Chalfant

Limited Reconstruction	2.2 miles	$ 60,800
New Construction	1.2 miles	219,000

TURTLE CREEK AND MONROEVILLE ROAD

Southern branch between Pa. Route 180 in Turtle Creek and U.S. Route 22 in Monroeville

Limited Reconstruction	1.0 mile	$ 20,000

PA. ROUTE 48

Between Pa. Route 51 and U.S. Route 30

Limited Reconstruction	.5 mile	$ 10,000
Limited Reconstruction	3.7 miles	88,000
New Construction	2.3 miles	495,000

PA. ROUTE 148

Between Pa. Route 48 in Eden Park and Pa. Route 180 in Wilmerding

Limited Reconstruction	1.9 miles	$ 140,000
Limited Reconstruction	.8 mile	68,000
New Lane Construction	1.6 mile	223,000
Limited Reconstruction	.1 mile	2,800

PA. ROUTE 885, PITTSBURGH-MCKEESPORT BOULEVARD, and LEG. ROUTE 02239

Between Pittsburgh at Forbes Street, through Dravosburg, and Pa. Route 31 in East Monongahela

Limited Reconstruction	.8 mile	$ 35,000
Limited Reconstruction	.2 mile	18,500
Limited Reconstruction	.7 mile	62,000
Limited Reconstruction	1.8 miles	44,000
Limited Reconstruction	.3 mile	5,500
Limited Reconstruction	.7 mile	17,000

PA. ROUTE 837

Between Washington County Line and Pa. Route 51 in West Elizabeth

New Construction	2.4 miles	$ 698,000

BROWNSVILLE EXTENSION, BROWNSVILLE-LIBRARY ROAD, BROWNSVILLE ROAD, and FAIR HAVEN AND PROVOST ROAD

Between Washington County Line and Pa. Route 51 at Fair Haven

Limited Reconstruction	3.9 miles	$ 92,000
Limited Reconstruction	3.3 miles	91,000

COUNTY ROAD

Between Pa. Route 88 and Brownsville Extension

Limited Reconstruction	1.6 miles	$ 35,000

LEG ROUTES 02075 and 02063 RELOCATED

Between Pa. Route 51 at Fair Haven and Pa. Route 88 at the intersection of Catfish Run Road

New Construction	4.2 miles	$ 1,048,000

LEG. ROUTE 02059

Between U.S. Truck Route 19 and Leg. Route 02235 in Mount Lebanon Township

New Construction	1.0 mile	$ 162,000

LEG. ROUTE 02240

Between U.S. Route 19 and Leg. Route 02050 (Mayview Road) in Bridgeville

New Construction	.7 mile	$ 86,000

PA. ROUTE 28

Between Washington County Line and Pa. Route 519

Limited Reconstruction	1.3 miles	$ 8,800

LEG. ROUTES 02246, 02204 SPUR E, 681, and 02013

Between Washington County Line in McDonald and U.S. Route 22

Limited Reconstruction	1.9 miles	$ 25,000
New Construction	1.2 miles	275,000
New Construction	3.4 miles	769,000

LEG. ROUTE 396

Between Noblestown and U.S. Route 22 at Santiago

New Construction	2.2 miles	$ 76,000
Limited Reconstruction	2.5 miles	44,000

LEG. ROUTE 680

Between Washington County Line and Pa. Route 978

Limited Reconstruction	3.7 miles	$ 101,500

WEST FIFTH AVENUE

Between Pa. Route 148 in McKeesport, at the intersection of Walnut Street and George H. Lysle Boulevard, and Glassport-Dravosburg Bridge

New Construction	.5 mile	$ 286,000

ARMSTRONG COUNTY

LEG. ROUTE 03027
Between Pa. Route 28 in Brady's Bend Township and Pa. Route 68 in Sugar Creek Township

Limited Reconstruction	3.5 miles	$	153,000

LEG. ROUTES 03015 and 03014
Between Pa. Route 268 in Sugar Creek Township and U.S. Route 422 in Worthington

Limited Reconstruction	4.3 miles	$	66,500
New Construction	3.0 miles		156,000

PA. ROUTE 228
Between Pa. Route 28 in South Buffalo Township and Pa. Route 268 in East Franklin Township

Limited Reconstruction	9.9 miles	$	192,100

LEG. ROUTES 03022 and 03023
Between Pa. Route 268 in East Franklin Township and Leg. Route 03112 in Templeton

Limited Reconstruction	8.0 miles	$	332,000

PA. ROUTE 128
Between Pa. Route 28 north of Freeport and Pa. Route 359 in Manorville

New Construction	2.9 miles	$	258,000
New Construction	1.0 mile		306,000
Limited Reconstruction	1.5 miles		61,000

PA. ROUTE 66
Between Pa. Route 256 in Leechburg and Pa. Route 56 in Apollo

Limited Reconstruction	5.6 miles	$	210,000
Limited Reconstruction	.8 mile		23,000

PA. ROUTE 66 ALT.
Between Pa. Route 66 in North Vandergrift and Pa. Route 66 in Bethel Township

Limited Reconstruction	1.2 miles	$	77,400

LEG. ROUTE 03043
Between Westmoreland County Line and Pa. Route 56

Limited Reconstruction	6.4 miles	$	254,000

PA. ROUTE 359
Between Pa. Route 56 in Kiskiminetas Township and Pa. Route 128 in Manorville

Limited Reconstruction	17.8 miles	$	421,000

PA. ROUTE 56
Between Pa. Route 66 in Apollo and Pa. Route 156 (and also Pa. Route 210) in South Bend Township

Limited Reconstruction	5.0 miles	$	353,700

PA. ROUTE 156
Between Pa. Route 56 in South Bend Township and Indiana County Line

Limited Reconstruction	5.6 miles	$	255,000

PA. ROUTE 210
Between Pa. Route 56 (and also Pa. Route 156) in South Bend Township and Indiana County Line

Limited Reconstruction	12.9 miles	$	485,000

LEG. ROUTES 03078 and 03079
Between Pa. Route 28 (and also Pa. Route 66) in Boggs Township and Templeton

Limited Reconstruction	3.4 miles	$	125,000

LEG. ROUTES 03069, 03129, 03073, 03076, 03077 and 03075
Between Pa. Route 28 (and also Pa. Route 66) in Rayburn Township and Pa. Route 839 in Dayton

New Construction	6.0 miles	$	192,000

PA. ROUTE 536
Between Clarion County Line and Jefferson County Line

Limited Reconstruction	2.5 miles	$	36,700

LEG. ROUTE 03119
Between Pa. Route 839 south of Dayton and Indiana County Line

Limited Reconstruction	1.1 miles	$	15,800

LEG. ROUTE 03084
Between Leg. Route 03068 in Madison Township and Pa. Route 28 (and also Pa. Route 66) in Mahoning Township

Limited Reconstruction	6.5 miles	$	179,000

LEG. ROUTE 03075
Between Pa. Route 28 (and also Pa. Route 66) in Mahoning Township and Pa. Route 839 in Dayton

Limited Reconstruction	9.2 miles	$	175,000

LEG. ROUTE 03071
Between Pa. Route 28 (and also Pa. Route 66) in Boggs Township and Leg. Route 03069 in Valley Township

Limited Reconstruction	3.5 miles	$	41,800

BEAVER COUNTY

PA. ROUTE 931
Between Pa. Route 18 in Frankfort Springs and Allegheny County Line

New Construction	2.2 miles	$	201,000

PA. ROUTE 168
Between Pa. Route 18 in Frankfort Springs and Pa. Route 51 in Darlington

Limited Reconstruction	1.2 miles	$	54,000
New Construction	2.8 miles		277,000
Limited Reconstruction	10.4 miles		49,500

PA. ROUTE 930
Between Pa. Route 168 in Ohio Township and Pa. Route 68 in Beaver borough at the intersection of Buffalo and Third Streets

Limited Reconstruction	5.0 miles	$	249,000
Limited Reconstruction	.2 mile		8,600

PA. ROUTE 118
Between Pa. Route 168 in Hookstown and Pa. Route 18

Limited Reconstruction	3.2 miles	$ 51,200

LEG. ROUTE 04123
Between Pa. Route 18 (and also Pa. Route 118) in Racoon Township and Pa. Route 51 in Aliquippa

Limited Reconstruction	6.6 miles	$ 251,000

PA. ROUTE 151
Between Pa. Route 18 in Racoon Township and Pa. Route 51 in Hopewell Township

Limited Reconstruction	6.8 miles	$ 29,700

PA. ROUTE 51
Between Allegheny County Line and Pa. Route 18 in Center Township

Limited Reconstruction	9.8 miles	$ 581,500

LEG. ROUTE 04019
Between Pa. Route 51 in Aliquippa, at the intersection of Sheffield Street and Broadhead Road, and Pa. Route 930 south of Monaca

Limited Reconstruction	1.4 miles	$ 95,500
New Construction	3.9 miles	204,700

PA. ROUTE 989
Between Pa. Route 88 north of Ambridge and Pa. Route 78 Spur in New Sewickley Township

New Construction	2.9 miles	$ 474,000
Limited Reconstruction	3.1 miles	78,100

PA. ROUTE 78 SPUR
Between Pa. Route 989 and Pa. Route 68 in North Sewickley Township

Limited Reconstruction	3.4 miles	$ 132,000

LEG. ROUTE 820
Along Allegheny County Line and Sewickley Creek in Economy Township

New Construction	1.3 miles	$ 187,000

LEG. ROUTE 820
Along eastern portion of Allegheny County Line and Sewickley Creek in Economy Township

Limited Reconstruction	.8 mile	$ 39,300

T-575, LEG. ROUTES 04020, and 04020 SPUR E
Between Pa. Route 88 in Conway and Butler County Line

New Construction	5.7 miles	$ 1,114,100

LEG. ROUTE 04122
Between Pa. Route 68 in Rochester and Leg. Route 04117 in Pulaski Township

Limited Reconstruction	1.1 miles	$ 44,000

PA. ROUTE 588
Between Butler County Line and Pa. Route 18 in Beaver Falls

Limited Reconstruction	9.3 miles	$ 91,400
New Construction	2.7 miles	578,400

PA. ROUTE 588
Between Pa. Route 18 in Beaver Falls and Pa. Route 51 in Patterson Township

Limited Reconstruction	.3 mile	$ 17,600
New Construction	1.8 miles	296,000

LEG. ROUTE 04005
Between Pa. Route 351 and Pa. Route 588 in North Sewickley Township

New Construction	.1 mile	$ 2,200
New Construction	4.0 miles	344,000

PA. ROUTE 251
Between Pa. Route 18 in West Mayfield and Pa. Route 51

Limited Reconstruction	.3 mile	$ 2,500
New Construction	2.8 miles	454,000

T-575, LEG. ROUTES 04014, 04053, 04004, 04066, and SAA 892
Between Pa. Route 68 in Beaver borough and Pa. Route in South Beaver Township

New Construction	2.8 miles	$ 383,000
New Construction	3.7 miles	200,500

PA. ROUTE 351
Between Lawrence County Line through Koppel and New Galilee, and Lawrence County Line

Limited Reconstruction	.7 mile	$ 17,600
Limited Reconstruction	3.4 miles	245,000
New Construction	.2 mile	7,100

PA. ROUTE 551
Between Pa. Route 51 (and also Pa. Route 168) in Darlington and Lawrence County Line

Limited Reconstruction	3.6 miles	$ 67,000

LEG. ROUTE 265
Between Pa. Route 551 in New Galilee and Pa. Route 351 in Darlington

New Construction	1.7 miles	$ 262,000

BEDFORD COUNTY

PA. ROUTE 96
Between Maryland State Line and Pa. Route 31 in Mann's Choice

New Construction	1.1 miles	$ 212,300
Limited Reconstruction	3.2 miles	36,300
New Construction	.5 mile	42,700

PA. ROUTE 96
Between Pa. Route 31 west of Mann's Choice and Pa. Route 56 in Pleasantville

New Construction	13.6 miles	$ 1,014,400

LEG. ROUTE 05074
Between Pa. Route 56 in Pleasantville and Pa. Route 869

New Construction	4.3 miles	$ 228,600

PA. ROUTE 869
Between Leg. Route 05074 in Lincoln Township and Cameron County Line

Limited Reconstruction	8.5 miles	$ 196,800

LEG. ROUTE 05049
Between Pa. Route 96 north of Schellsburg and Pa. Route 56 in East Saint Clair Township

New Construction	6.2 miles	$ 325,100

PA. ROUTE 326
Between Maryland State Line and U.S. Route 30 east of Bedford borough

New Construction	8.8 miles	$ 618,800
Limited Reconstruction	4.4 miles	89,500

PA. ROUTE 26
Between Fulton County Line and U.S. Route 30 in Everett

New Construction	10.1 miles	$ 475,000
Limited Reconstruction	3.2 miles	114,400

PA. ROUTE 36
Between U.S. Route 30 west of Everett and Blair County Line

New Construction	7.9 miles	$ 519,600
New Construction	3.4 miles	286,900

PA. ROUTE 888
Between Pa. Route 36 north of Woodbury and Blair County Line

Limited Reconstruction	2.2 miles	$ 72,600

PA. ROUTE 914
Between Pa. Route 26 in Broadtop Township and Huntingdon County Line

New Construction	4.1 miles	$ 350,200

PA. ROUTE 915
Between Pa. Route 26 in Hopewell and Fulton County Line

New Construction	6.5 miles	$ 569,400

PA. ROUTE 868
Between Pa. Route 26 in Hopewell Township and Pa. Route 36 in South Woodbury Township

New Construction	1.4 miles	$ 231,000

BERKS COUNTY

PA. ROUTE 23
Between U.S. Route 122 in Caernarvon Township and Chester County Line

Limited Reconstruction	2.2 miles	$ 93,500

LEG. ROUTE 244
Between U.S. Route 122 in Robeson Township and Pa. Route 83 in Birdsboro

New Construction	8.0 miles	$ 851,000

PA. ROUTE 83
Between Chester County Line and U.S. Route 422 in Reading

New Construction	11.0 miles	$ 1,915,000
Limited Reconstruction	.7 mile	22,000
Limited Reconstruction	1.0 mile	38,500

LEG. ROUTES 06077, 660, and 06075
Between Pa. Route 73 in Brecknock Township and U.S. Route 222 in Shillington

Limited Reconstruction	3.1 miles	$ 91,300

LEG. ROUTE 06062
Between Lancaster County Line and U.S. Route 422 in Sinking Spring

Limited Reconstruction	4.3 miles	$ 160,600
New Construction	.9 mile	137,600

LEG. ROUTE 06071
Between U.S. Route 422 in Sinking Spring and U.S. Route 222 in Shillington

Limited Reconstruction	2.6 miles	$ 85,800

LEG. ROUTE 06038
Between U.S. Route 422 in Wyomissing and Pa. Route 83 in Penn Township

Limited Reconstruction	3.2 miles	$ 114,400

LEG. ROUTE 06039
Between U.S. Route 422 (and also Leg. Route 06071) in Sinking Spring and U.S. Route 122 in Hyde Park

New Construction	3.0 miles	$ 649,200

LEG. ROUTES 06042 SPUR E, 06042 and 06043
Between Pa. Route 83 (and also Leg. Route 06039) and Pa. Route 383 south of West Leesport

New Construction	.3 mile	$ 42,900
Limited Reconstruction	3.5 miles	93,000

LEG. ROUTE 06049
Between Lebanon County Line and U.S. Route 422 in Womelsdorf

Limited Reconstruction	1.0 mile	$ 34,700

LEG. ROUTE 06047
Between U.S. Route 422 in Robesonia and Pa. Route 83 in Bernville

Limited Reconstruction	6.3 miles	$ 213,600

LEG. ROUTE 06020
Between Pa. Route 483 in Marion Township and Leg. Route 06047 in Bernville

Limited Reconstruction	5.4 miles	$ 115,500

LEG. ROUTE 06007
Between Pa. Route 243 and Pa. Route 83 in Tulpehocken Township

Limited Reconstruction	2.2 miles	$ 59,400

PA. ROUTE 83
Between Leg. Route 06007 and Leg. Route 06009 in Tulpehocken Township

New Construction	.4 mile	$	44,600

LEG. ROUTE 06019
Between Leg. Route 06017 in Penn Township and Leg. Route 06031 in Centerport

Limited Reconstruction	6.8 miles	$	173,900

LEG. ROUTE 06031
Between U.S. Route 22 in Upper Bern Township and U.S. Route 122 in Center Township

Limited Reconstruction	7.6 miles	$	221,000

PA. ROUTE 383
Between Pa. Route 83 in Penn Township and U.S. Route 122 in Leesport

New Construction	5.2 miles	$	715,800

LEG ROUTES 06143 and 157 SPUR E
Between U.S. Route 122 in Reading and U.S. Route 222 in Temple

Limited Reconstruction	1.8 miles	$	208,500
New Construction	.3 mile		112,500

PA. ROUTE 82
Between Pa. Route 83 in Birdsboro and U.S. Route 422 in Baumstown

Limited Reconstruction	1.0 mile	$	44,800

LEG. ROUTES 06112 and 06054
Between Pa. Route 73 in Stony Creek Mills and Leg. Route 06113 in Alsace Township

New Construction	2.3 miles	$	360,000
Limited Reconstruction	3.9 miles		90,000

LEG. ROUTES 06107, A-954, and A-2059
Between Pa. Route 562 in Exeter Township and Pa. Route 662 in Amity Township

Limited Reconstruction	3.7 miles	$	128,700

LEG. ROUTES 06110 and 06111
Between U.S. Route 422 and Pa. Route 562 in Exeter Township

Limited Reconstruction	.2 mile	$	6,700

PA. ROUTE 662
Between U.S. Route 422 in Amity Township and Pa. Route 73 in Friedensburg

Limited Reconstruction	9.6 miles	$	351,200
New Construction	.6 mile		107,400

PA. ROUTE 662
Between Pa. Route 73 in Friedensburg and U.S. Route 122 in Shoemakersville

Limited Reconstruction	4.5 miles	$	167,200
New Construction	4.6 miles		612,000

PA. ROUTE 562
Between U.S. Route 422 in Saint Lawrence and Pa. Route 662 in Amity Township

Limited Reconstruction	5.4 miles	$	207,900

PA. ROUTE 73
Between U.S. Route 422 in Mount Penn and Montgomery County Line at Boyertown

Limited Reconstruction	7.3 miles	$	255,900
Limited Reconstruction	1.7 miles		64,900

LEG. ROUTE 06113
Between Leg. Route 06143 in Reading and Leg. Route A-7203 in New Jerusalem

Limited Reconstruction	1.2 miles	$	67,100
Limited Reconstruction	10.6 miles		437,200

LEG. ROUTE 06121
Between Pa. Route 662 west of Friedensburg and U.S. Route 222 in Maiden Creek Township

New Construction	4.6 miles	$	687,800

LEG. ROUTE 06117
Between U.S. Route 222 north of Temple and Pa. Route 662 in Fleetwood

New Construction	6.0 miles	$	912,800

LEG. ROUTE 383
Between U.S. Route 122 east of Leesport and U.S. Route 222 in Maiden Creek Township

Limited Reconstruction	.4 mile	$	8,300

LEG. ROUTE A-975
Between Montgomery County Line and Pa. Route 100 south of Bally

Limited Reconstruction	.9 mile	$	33,000

LEG. ROUTE 06140
Between Pa. Route 100 in Hereford Township and Leg. Route 06118 north of Fleetwood

Limited Reconstruction	3.2 miles	$	110,600
Limited Reconstruction	3.1 miles		87,500

LEG. ROUTE 06119
Between Pa. Route 100 (and also Pa. Route 29) in Hereford Township and Leg. Route 06008 (and also Leg. Route 06118) in Lyons

Limited Reconstruction	10.0 miles	$	377,800
Limited Reconstruction	3.5 miles		147,000

LEG. ROUTE 06118
Between Leg. Route 06008 (and also Leg. Route 06118) in Lyons and Pa. Route 662 in Fleetwood

Limited Reconstruction	4.1 miles	$	248,700

LEG. ROUTE 06012
Between Lehigh County Line and Leg. Route 06119 in Longswamp Township

Limited Reconstruction	.7 mile	$	26,400

LEG. ROUTES 06008 and 06142

Between Leg. Route 06118 (and also Leg. Route 06119) in Lyons and U.S. Route 222 (and also Leg. Route 06134) in Kutztown

Limited Reconstruction	3.0 miles	$ 118,300

LEG. ROUTE 06134

Between U.S. Route 222 (and also Leg. Route 06142) in Kutztown and Pa. Route 143 in Albany Township

Limited Reconstruction	11.2 miles	$ 424,500

BLAIR COUNTY

PA. ROUTE 164

Between Cambria County Line and U.S. Route 220 in Freedom Township

New Construction	7.0 miles	$ 491,700

PA. ROUTE 36

Between Bedford County Line and U.S. Route 22 (and also U.S. Route 220) in Hollidaysburg

Limited Reconstruction	2.6 miles	$ 22,000
New Construction	.1 mile	44,000
New Construction	1.3 miles	355,300
New Construction	1.1 miles	126,100

PA. ROUTE 866

Between Bedford County Line and Pa. Route 203 in Williamsburg

Limited Reconstruction	2.6 miles	$ 89,900
Limited Reconstruction	.3 mile	9,400
Limited Reconstruction	12.7 miles	279,900

PA. ROUTE 550

Between Pa. Route 350 and Huntingdon County Line

New Construction	.4 mile	$ 30,200

PA. ROUTE 865

Between Cambria County Line and U.S. Route 220 east of Bellwood

New Construction	3.9 miles	$ 249,700
New Construction	.3 mile	149,000

PA. ROUTE 981

Between U.S. Route 220 in Altoona and Huntingdon County Line

New Construction	3.8 miles	$ 236,500

PA. ROUTE 36

Between Cambria County Line and Pa. Route 764 in Altoona at the intersection of Union and Sixth Avenues

Limited Reconstruction	3.8 miles	$ 194,000
Limited Reconstruction	.7 mile	30,800

PA. ROUTE 168

In Altoona, between the intersection of Seventh Street and Howard Avenue and Bellwood Road at Altoona City Line

Limited Reconstruction	1.1 mile	$ 34,100

LEG. ROUTE 07018

Between Cambria County Line and Pa. Route 764 in Altoona

Limited Reconstruction	1.7 miles	$ 40,100
Limited Reconstruction	1.2 miles	25,900

PA. ROUTE 764

Between U.S. Route 22 in Duncansville and Pa. Route 36 in Altoona at the intersection of Union and Sixth Avenues

New Lane Construction	3.3 miles	$ 435,400
New Lane Construction	.2 mile	8,800
Limited Reconstruction	2.2 miles	100,200

LEG. ROUTE 07052

In Altoona, between Pa. Route 764, at the intersection of 31st Street and Sixth Avenue, and Seventh Street connection at Seventh Avenue and Seventh Street

Limited Reconstruction	.3 mile	$ 10,700
Limited Reconstruction	.7 mile	27,400

SEVENTH STREET CONNECTION

In Altoona, between Pa. Route 168 at Howard Avenue and Pa. Route 764 at Sixth Avenue

New Construction	.5 mile	$ 60,500

LEG. ROUTE 07011

Between U.S. Route 22 east of Altoona and Altoona City Line

New Construction	4.0 miles	$ 325,800

PA. ROUTE 36

Between U.S. Route 22 (and also U.S. Route 220) west of Hollidaysburg and Pa. Route 764 in Altoona at the intersection of Union and Sixth Avenues

New Construction	.8 mile	$ 44,000
New Construction	.3 mile	14,900
New Lane Construction	.8 mile	100,200

BRADFORD COUNTY

PA. ROUTE 84

Between Tioga County Line and Pa. Route 549

Limited Reconstruction	1.2 miles	$ 28,000

PA. ROUTE 549

Between Tioga County Line and New York State Line

Limited Reconstruction	2.9 miles	$ 110,400

LEG. ROUTES 08050 and A-5799

Between Pa. Route 549 in Wells Township and Pa. Route 14 in Columbia Township

Limited Reconstruction	3.9 miles	$ 86,900

LEG. ROUTE 08054

Between Pa. Route 14 in Columbia Township and U.S. Route 309 (and also U.S. Route 220)

Limited Reconstruction	6.2 miles	$ 185,000

PA. ROUTE 409

Between U.S. Route 309 (and also U.S. Route 6) and U.S. Route 106 in Wyalusing Township

Limited Reconstruction	.3 mile	$ 14,300

LEG. ROUTE 08077

Between U.S. Route 309 (and also U.S. Routes 220 and 6) in North Towanda and Leg. Route 08081 east of Athens

Limited Reconstruction	1.3 miles	$	47,800

LEG. ROUTE 08066

Between U.S. Route 309 (and also U.S. Route 220) in Athens and New York State Line

Limited Reconstruction	2.8 miles	$	67,100

LEG. ROUTES 08081, 08083, 08082, 08078, and 08079

Between U.S. Route 309 (and also U.S. Route 220) in Athens and Pa. Route 187 in Rome

Limited Reconstruction	2.0 miles	$	29,700
Limited Reconstruction	1.1 miles		25,800

PA. ROUTE 187

Between Pa. Route 467 in Rome Township and New York State Line

Limited Reconstruction	2.0 miles	$	44,300
Limited Reconstruction	5.3 miles		159,600
Limited Reconstruction	1.1 miles		30,800

PA. ROUTE 838

Between Pa. Route 187 in Windham Township and Leg. Route 08101 in Warren Township

Limited Reconstruction	1.4 miles	$	35,200
Limited Reconstruction	3.2 miles		93,500

LEG. ROUTE 08089

Between Pa. Route 467 in Orwell Township and Pa. Route 868 in Warren Township

Limited Reconstruction	1.3 miles	$	15,400
Limited Reconstruction	1.1 miles		11,000

LEG. ROUTE 08008

Between Sullivan County Line and U.S. Route 220 in New Albany

Limited Reconstruction	4.3 miles	$	111,100

LEG. ROUTES 08009, 08012, and 08010

Between U.S. Route 220 in New Albany and Pa. Route 187 (and also Pa. Route 387) in Terry Township

Limited Reconstruction	5.5 miles	$	7,700

LEG. ROUTE 08094

Between Leg. Route 08089 and Pa. Route 838 in Warren Township

Limited Reconstruction	.3 mile	$	10,500

BUCKS COUNTY

PA. ROUTE 663

Between Montgomery County Line and U.S. Route 309 in Quakertown

New Construction	2.7 miles	$	320,000
Limited Reconstruction	4.5 miles		159,000

LEG. ROUTE 09108

Between U.S. Route 309 in Quakertown and Montgomery County Line in Naceville

New Construction	3.7 miles	$	580,000

LEG. ROUTES A 4037 and 09011

On Montgomery County Line between U.S. Route 309 and Leg. Route 09108 in Naceville

Limited Reconstruction	5.3 miles	$	158,200

PA. ROUTE 113

Between Montgomery County Line and Pa. Route 313 in Hilltown Township

Limited Reconstruction	6.9 miles	$	165,000

LEG. ROUTE 09033

On Montgomery County Line between U.S. Route 309 in New Britain Township and Pa. Route 532 at Philadelphia Line

Limited Reconstruction	10.4 miles	$	400,000
New Construction	.9 mile		297,000
New Construction	4.6 miles		575,000
Limited Reconstruction	.4 mile		6,000

PA. ROUTE 132

Between U.S. Route 611 in Warrington Township and U.S. Route 13 in Eddington

Limited Reconstruction	2.7 miles	$	204,000
New Lane Construction	3.3 miles		258,000
New Construction	2.6 miles		553,000
Limited Reconstruction	4.4 miles		73,600

PA. ROUTE 232

Between Pa. Route 263 in Buckingham Township and Pa. Route 32 east of New Hope

Limited Reconstruction	1.5 miles	$	37,800
Limited Reconstruction	.8 mile		20,000

PA. ROUTE 332

Between Pa. Route 263 in Warwick Township and Pa. Route 432 east of Yardley

Limited Reconstruction	7.6 miles	$	413,000
New Construction	1.5 miles		195,000
Limited Reconstruction	3.9 miles		242,000

PA. ROUTE 232

Between Montgomery County Line and Pa. Route 332 in Northampton Township

Limited Reconstruction	4.3 miles	$	91,000

PA. ROUTE 532

Between Philadelphia Line and Pa. Route 213 (and also Pa. Route 232) in Southampton Township

New Construction	1.4 miles	$	820,000

PA. ROUTE 232

Between Pa. Route 532 (and also Pa. Route 213) in Lower Southampton Township and Pa. Route 322 in Northampton Township

Limited Reconstruction	4.1 miles	$	104,000

PA. ROUTE 213
Between Pa. Route 532 (and also Pa. Route 232) in Lower Southampton Township and Pa. Route 432 in Langhorne

New Construction	2.1 miles	$ 455,000
Limited Reconstruction	2.2 miles	12,500

PA. ROUTE 432
Between Pa. Route 213 in Langhorne and Pa. Route 32 at Delaware River

Limited Reconstruction	5.4 miles	$ 212,000
New Construction	1.0 mile	385,000

LEG. ROUTE 09140
Between Pa. Route 432 in Yardley and Pa. Route 32 in Upper Makefield Township

Limited Reconstruction	5.3 miles	$ 28,000
New Construction	.6 mile	70,000

PA. ROUTE 32
Between Leg. Route 09140 in Upper Makefield Township and U.S. Route 611 in Nockamixon Township

Limited Reconstruction	28.1 miles	$ 2,151,000

U.S. ROUTE 611
Between Pa. Route 32 in Nockamixon Township and Northampton County Line

Limited Reconstruction	2.3 miles	$ 174,000
New Construction	1.5 miles	234,000

PA. ROUTE 412
Between Northampton County Line and U.S. Route 611 in Nockamixon Township

Limited Reconstruction	6.9 miles	$ 201,000

PA. ROUTE 212
Between Pa. Route 412 north of Pleasant Valley and Pa. Route 313 north of Quakertown

Limited Reconstruction	4.1 miles	$ 39,200
Limited Reconstruction	1.3 miles	44,500

PA. ROUTES 212 and 412
Between junction of Pa. Routes 212 and 412 in Pleasant Valley and their separation in Bursonville

New Construction	.4 mile	$ 93,000

LEG. ROUTE 09049
Between Pa. Route 413 (and also Pa. Route 232) and Pa. Route 263 in Buckingham Township

Limited Reconstruction	1.2 miles	$ 27,500

LEG. ROUTES A-104 and A-1302
Between Pa. Route 32 (and also Pa. Route 432) east of Yardley and U.S. Route 1 in Morrisville

Limited Reconstruction	.7 mile	$ 75,500

BUTLER COUNTY

LEG. ROUTE 10001
Between Beaver County Line and U.S. Route 19 at Thorn Hill Industrial and Training School

New Construction	2.6 miles	$ 456,000

PA. ROUTE 528
Between U.S. Route 19 in Cranberry Township and Pa. Route 68 in Evansburg

Limited Reconstruction	2.9 miles	$ 56,500

PA. ROUTE 528
Between Pa. Route 68 in Evansburg and Pa. Route 8 (and also Pa. Route 78) in Brady Township

Limited Reconstruction	6.1 miles	$ 126,000
Limited Reconstruction	2.2 miles	78,000

LEG. ROUTE 10062
Between Pa. Route 528 (and also Pa. Route 8 and 78) in Brady Township and Pa. Route 308 in West Sunbury

New Construction	1.6 miles	$ 134,000
Limited Reconstruction	4.6 miles	94,600

PA. ROUTE 68
Between Pa. Route 528 (and also Pa. Route 855) in Evansburg and U.S. Route 19 in Harmony

Limited Reconstruction	5.0 miles	$ 436,000

LEG. ROUTE 10006
Between Allegheny County Line and Pa. Route 855 in Mars

Limited Reconstruction	2.1 miles	$ 57,500

PA. ROUTE 855
Between Allegheny County Line and Pa. Route 68 (and also Pa. Route 528) in Evansburg

Limited Reconstruction	6.0 miles	$ 464,100

PA. ROUTE 68
Between Pa. Route 528 (and also Pa. Route 855) in Evansburg and U.S. Route 422 in Butler city

Limited Reconstruction	.5 mile	$ 17,600
New Construction	5.1 miles	623,000

PA. ROUTE 308
Between Armstrong County Line, through Saxonburg, and Pa. Route 356 in Butler city

Limited Reconstruction	14.2 miles	$ 480,000
New Construction	.8 mile	67,000

PA. ROUTE 185
Between Armstrong County Line and Pa. Route 356 in Butler city, at the intersection of Zeigler and Center Avenues

Limited Reconstruction	8.3 miles	$ 476,700

LEG. ROUTE 10059
Between U.S. Route 422, through East Butler, and Pa. Route 68

Limited Reconstruction	1.8 miles	$ 26,400

PA. ROUTE 68
Between Armstrong County Line and Millerstown

Limited Reconstruction	1.6 miles	$ 90,000

LEG. ROUTES 10061, 10060, and 10059
Between Pa. Route 68 in Millerstown and Pa. Route 308 in West Sunbury

Limited Reconstruction	10.9 miles	$ 275,800

PA. ROUTE 308
Between Pa. Route 8 in Center Township and Venango County Line

New Construction	.7 mile	$ 76,000
New Construction	8.0 miles	815,500
New Construction	4.4 miles	473,000

PA. ROUTE 338
Between Leg. Route 10083 in Allegheny Township and Pa. Route 8 in Harrisville

Limited Reconstruction	14.6 miles	$ 525,400

LEG. ROUTES 10068 and 10134
Between Pa. Route 108 in Slippery Rock and Pa. Route 38 in Washington Township

Limited Reconstruction	12.2 miles	$ 264,600

PA. ROUTE 488
Between Pa. Route 108 in North Township and U.S. Route 19 (and also U.S. Route 422) in Portersville

Limited Reconstruction	8.3 miles	$ 165,000

LEG. ROUTE 10111
Between Pa. Route 8 south of Butler city and Leg. Route 10046 in Butler city at the intersection of Hanson and Lewis Avenues

New Construction	.2 mile	$ 350,000

CAMBRIA COUNTY

PA. ROUTE 56
Between Westmoreland County Line and Pa. Route 403 in Johnstown at the intersection of Broad Street and Fairfield Avenue

New Construction	1.0 mile	$ 277,200
New Lane Construction	1.7 miles	291,600
Limited Reconstruction	.7 mile	19,900

LEG. ROUTE 11065
Between Pa. Route 271 in Westmont and Pa. Route 56 in Johnstown at the intersection of Fairfield Avenue and Strayer Street

Limited Reconstruction	.7 mile	$ 18,200

LEG. ROUTES 11011 and 11007
Between Pa. Route 271 in Westmont and Pa. Route 219 in Ferndale at the intersection of Ferndale Avenue and Henry Street

New Construction	.5 mile	$ 26,000
New Construction	1.5 miles	91,700

PA. ROUTE 53
Between Somerset County Line and U.S. Route 219 in Johnstown at the intersection of Franklin and Wonder Streets

Limited Reconstruction	.9 mile	$ 37,400

LEG. ROUTE 11012
Between Pa. Route 56 in Johnstown, at the intersection of Solomon and Bedford Streets, and Pa. Route 53 in Richland Township

Limited Reconstruction	.3 mile	$ 18,800
New Construction	3.9 miles	346,500

PA. ROUTE 160
Between Somerset County Line and Pa. Route 64 in Portage

Limited Reconstruction	.5 mile	$ 16,300
New Construction	.4 mile	25,200
New Construction	2.4 miles	133,400
New Construction	5.6 miles	372,700

PA. ROUTE 869
Between Bedford County Line and Pa. Route 160 in Lloydell

New Construction	1.4 miles	$ 67,000

PA. ROUTE 869
Between Pa. Route 160 in Lloydell and Pa. Route 53 south of South Fork

Limited Reconstruction	2.2 miles	$ 42,500

PA. ROUTE 53
Between Pa. Route 869 south of South Fork and Pa. Route 160 in Wilmore

Limited Reconstruction	1.1 miles	$ 37,000
Limited Reconstruction	3.3 miles	213,500

LEG. ROUTE 11021
Between U.S. Route 219 in Taylor Township and Pa. Route 53 at Summerhill

Limited Reconstruction	1.7 miles	$ 22,400
New Construction	4.1 miles	314,500

PA. ROUTE 164
Between Bedford County Line and Pa. Route 53 in Portage

New Construction	5.0 miles	$ 453,600
Limited Reconstruction	.3 mile	8,100

PA. ROUTE 160
Between Pa. Route 53 in Wilmore and U.S. Route 219 (and also U.S. Route 22) in Ebensburg

Limited Reconstruction	.2 mile	$ 4,000
New Construction	7.5 miles	348,500

PA. ROUTE 45
Between U.S. Route 422 in Blacklick Township and U.S. Route 22 (and also Route U.S. 219) southwest of Ebensburg

Limited Reconstruction	4.1 miles	$ 229,000
New Construction	5.2 miles	230,900

LEG. ROUTE 11030
Between U.S. Route 22 (and also U.S. Route 219) in Jackson Township and Pa. Route 45 in Nanty-Glo

New Construction	1.5 miles	$ 336,500

LEG. ROUTE 11032
Between Pa. Route 45 in Nanty-Glo and U.S. Route 422 in Blacklick Township

New Construction	3.4 miles	$ 304,700

LEG. ROUTES 62, 11036, and 11073; and PA. ROUTE 933
Between Pa. Route 553 in Barr Township and U.S. Route 219 in Ebensburg

Limited Reconstruction	2.1 miles	$ 64,300

New Construction	4.1 miles	316,700
Limited Reconstruction	5.7 miles	162,300

PA. ROUTE 553
Between Indiana County Line and U.S. Route 219 in East Carroll Township

New Construction	2.1 miles	$ 156,900

LEG. ROUTE 11049
Between U.S. Route 219 in Barnesboro and Leg. Route 11051 in Hastings

Limited Reconstruction	.4 mile	$ 12,600
Limited Reconstruction	.4 mile	10,900
Limited Reconstruction	.1 mile	3,000

PA. ROUTE 36
Between Clearfield County Line and Leg. Route 11051 in Hastings

Limited Reconstruction	2.6 miles	$ 163,400

LEG. ROUTE 11076
Between Leg. Route 11051 in Hastings and Pa. Route 36 in Elder Township west of Patton

New Construction	3.0 miles	$ 154,800

PA. ROUTE 36
Between Leg. Route 11076 in Elder Township and Blair County Line

Limited Reconstruction	1.4 miles	$ 69,300
Limited Reconstruction	4.5 miles	98,400

PA. ROUTE 53
Between Clearfield County Line and Pa. Route 253 at Van Ormer

Limited Reconstruction	4.0 miles	$ 108,200

LEG. ROUTE 11063
Between Pa. Route 53 and Pa. Route 253 in Reade Township

New Construction	4.1 miles	$ 116,500

PA. ROUTE 865
Between Pa. Route 253 in Reade Township and Blair County Line

New Construction	2.0 miles	$ 68,900
Limited Reconstruction	3.6 miles	163,000

LEG. ROUTE 53 SPUR A
Between Pa. Route 53 west of Gallitzin and Blair County Line

New Construction	.3 mile	$ 38,000

LEG. ROUTE 11035
Between Tunnelhill on Blair County Line and Pa. Route 36 in Gallitzin Township

New Construction	4.2 miles	$ 210,700
Limited Reconstruction	1.1 miles	25,600

PA. ROUTE 907
Between Pa. Route 36 in Chest Springs and Pa. Route 553 in Loretto

Limited Reconstruction	5.4 miles	$ 248,900

PA. ROUTE 45
Between U.S. Route 22 in Cresson and Pa. Route 907 in Loretto

Limited Reconstruction	4.2 miles	$ 155,800

LEG. ROUTE 11038
Between Pa. Route 907 in Allegheny Township and U.S. Route 219 south of Carrolltown

New Construction	6.3 miles	$ 317,700

CARBON COUNTY

LEG. ROUTE 13027
Between Schuylkill County Line and U.S. Route 309 in Beaver Meadows

New Construction	.3 mile	$ 24,300

PA. ROUTE 193 and LEG. ROUTE A-1012
Between U.S. Route 309 in Packer Township and Luzerne County Line

New Construction	4.0 miles	$ 328,500
Limited Reconstruction	1.9 miles	55,000

LEG. ROUTE 13021
Between Schuylkill County Line and U.S. Route 209 in Nesquehoning

New Construction	.5 mile	$ 45,200

PA. ROUTE 895
Between Schuylkill County Line and U.S. Route 309 in Bowmanstown

New Construction	.3 mile	$ 54,500

LEG. ROUTE 13014
Between U.S. Route 309 in Bowmanstown and Leg. Route A-1461 north of Palmerton

New Construction	.8 mile	$ 48,100

LEG. ROUTE A-1461
Between Leg. Route 03014 north of Palmerton and U.S. Route 309 in Palmerton

Limited Reconstruction	.4 mile	$ 8,000
New Lane Construction	.6 mile	34,100

LEG. ROUTE 13013
Between Leg. Route A-1461 in Palmerton and Monroe County Line

New Construction	.1 mile	$ 4,900

PA. ROUTE 902 and LEG. ROUTE 13006
Between U.S. Route 209 in Lansford and Leg. Route 13005 in Mahoning Township

Limited Reconstruction	.1 mile	$ 6,900
New Lane Construction	.6 mile	114,600
Limited Reconstruction	3.9 miles	69,600
New Construction	.9 mile	54,500

CENTRE COUNTY

PA. ROUTE 46
Between Clearfield County Line and Pa. Route 350 in Rush Township

New Construction	2.3 miles	$ 384,000

PA. ROUTE 550
Between Huntingdon County Line and Pa. Route 545 in Bellefonte

New Construction	21.0 miles	$	1,485,000

PA. ROUTE 550
Between Pa. Route 53 in Bellefonte and Pa. Route 64 in Walker Township

New Construction	5.5 miles	$	935,000

PA. ROUTE 64
Between Pa. Route 53 (and also Pa. Route 45) in Pleasant Gap and Clinton County Line

New Construction	9.6 miles	$	1,320,000

PA. ROUTE 445
Between Pa. Route 64 in Walker Township and Pa. Route 95 in Miles Township

New Construction	7.4 miles	$	363,000

PA. ROUTE 95
Between Pa. Route 53 in Centre Hall and Union County Line

New Construction	22.5 miles	$	1,056,000

PA. ROUTE 445
Between Pa. Route 95 in Miles Township and Pa. Route 45 (and also Leg. Route 873) in Millheim

New Construction	1.8 miles	$	143,000

LEG. ROUTE 873
Between Pa. Route 45 (and also Pa. Route 445) in Millheim and Leg. Route 14031 in Penn Township

Limited Reconstruction	2.5 miles	$	77,000

LEG. ROUTES 14031 and 14030
Between Leg. Route 873 in Penn Township and Pa. Route 53 in Potter Township

Limited Reconstruction	6.4 miles	$	242,000

PA. ROUTE 45
Between Huntingdon County Line and Pa. Route 545 in Ferguson Township

Limited Reconstruction	5.9 miles	$	302,000

LEG. ROUTE 14018
Between Pa. Route 545 (and also Pa. Route 45) in Ferguson Township and U.S. Route 322 in Harris Township

Limited Reconstruction	4.7 miles	$	231,000

LEG. ROUTES 14019, 871, and A-1435
Between Leg. Route 14018 in Harris Township and Pa. Route 545 (and also Pa. Route 45) east of State College

Limited Reconstruction	3.8 miles	$	137,500

LEG. ROUTE 14020
Between Leg. Route 871 and Leg. Route 14018 in Harris Township

Limited Reconstruction	3.0 miles	$	110,000

PA. ROUTE 879
Between Clearfield County Line and Pa. Route 144 in Snow Shoe Township

Limited Reconstruction	8.0 miles	$	286,000

PA. ROUTE 144
Between Pa. Route 879 and Pa. Route 53 in Snow Shoe Township

Limited Reconstruction	1.1 miles	$	47,000

LEG. ROUTES 14003, A-19, and A-407
Between Pa. Route 53 in Snow Shoe and Pa. Route 144 in Snow Shoe Township

Limited Reconstruction	4.9 miles	$	264,000

CHESTER COUNTY

PA. ROUTE 82
Between U.S. Route 30 in Coatesville, at the intersection of Lincoln Highway and North First Avenue, and Pa. Route 401 south of Elverson

New Construction	3.7 miles	$	820,000
Limited Reconstruction	5.6 miles		205,000

PA. ROUTE 82
Between Delaware County Line and U.S. Route 30 in Coatesville at the intersection of Lincoln Highway and Strode Avenue

New Construction	.4 mile	$	57,000
Limited Reconstruction	2.2 miles		104,000
Limited Reconstruction	9.6 miles		583,000

PA. ROUTE 272
Between Lancaster County Line and U.S. Route 1 in West Nottingham Township

New Construction	2.9 miles	$	530,000

PA. ROUTE 42
Between Maryland State Line and U.S. Route 1 south of Oxford

New Construction	3.4 miles	$	536,000

PA. ROUTE 472
Between Lancaster County Line and U.S. Route 1 in Oxford

Limited Reconstruction	3.5 miles	$	118,000

PA. ROUTE 896
Between Maryland State Line and Lancaster County Line

Limited Reconstruction	8.0 miles	$	776,000
New Construction	7.1 miles		1,228,000

PA. ROUTE 926
Between U.S. Route 122 in Upper Oxford Township and Pa. Route 3 in Willistown Township

Limited Reconstruction	12.0 miles	$	924,000
New Construction	1.6 miles		196,000
Limited Reconstruction	7.5 miles		317,000
New Construction	3.8 miles		670,000

PA. ROUTE 100
In Pennsbury Township, between southern entrance at Delaware County Line and first exit into Delaware County

Limited Reconstruction	1.3 miles	$	205,000

PA. ROUTE 100
Between Pa. Route 52 in Birmingham Township and Delaware County Line

New Construction	3.6 miles	$ 620,000

PA. ROUTE 572
Between Pa. Route 41 in Atglen and Pa. Route 82 in Coatesville at the intersection of Valley Road and Strode Avenue

Limited Reconstruction	2.7 miles	$ 75,000
New Lane Construction	4.3 miles	751,000

PA. ROUTE 840
Between Pa. Route 572 west of Parksburg and Pa. Route 162 in West Bradford Township

Limited Reconstruction	10.6 miles	$ 201,000

PA. ROUTE 162
Between Pa. Route 82 in East Marlboro Township and Pa. Route 840 in West Bradford Township

Limited Reconstruction	1.4 miles	$ 61,000

LEG. ROUTE 15098
Between Delaware County Line and Pa. Route 3 east of West Chester

Limited Reconstruction	5.4 miles	$ 210,000

PA. ROUTE 352
Between Delaware County Line and U.S. Route 30 West of Malvern

Limited Reconstruction	6.9 miles	$ 280,000

PA. ROUTE 29
Between West Chester By-Pass and Montgomery County Line at Phoenixville

Limited Reconstruction	8.6 miles	$ 268,000
New Construction	3.8 miles	565,000

PA. ROUTE 401
Between U.S. Route 30 north of Malvern and Berks County Line

New Construction	.6 mile	$ 135,000
Limited Reconstruction	8.8 miles	515,000

PA. ROUTE 113
Between Pa. Route 100 in Uwchlan Township and Pa. Route 23 in Phoenixville at the intersection of Nutt and Kimberton Roads

New Construction	9.6 miles	$ 2,405,000

PA. ROUTE 23
Between Pa. Route 83 west of Phoenixville and Berks County Line

Limited Reconstruction	16.6 miles	$ 585,000

PA. ROUTES 23 and 83
Between Montgomery County Line and the separation of Pa. Routes 23 and 83 west of Phoenixville

Limited Reconstruction	3.1 miles	$ 131,500
New Construction	.1 mile	28,000
Limited Reconstruction	1.3 miles	115,000

PA. ROUTE 83
Between Pa. Route 23 west of Phoenixville and Berks County Line

New Lane Construction	5.5 miles	$ 450,000
New Construction	4.1 miles	620,000

PA. ROUTE 252
In Tredyffrin Township between Montgomery County Line and Delaware County Line

New Construction	.8 mile	$ 158,000

CLARION COUNTY

PA. ROUTE 68
Between Armstrong County Line at East Brady and Pa. Route 368 in Sligo

New Construction	.2 mile	$ 132,000
Limited Reconstruction	7.8 miles	357,000
Limited Reconstruction	.8 mile	19,000

PA. ROUTE 861
Between Pa. Route 68 at Rimersburg and Pa. Route 66 in New Bethlehem

New Construction	12.3 miles	$ 1,322,700
Limited Reconstruction	.3 mile	11,500

PA. ROUTE 839
Between Pa. Route 861 north of New Bethlehem and Pa. Route 68 in Monroe Township

Limited Reconstruction	11.5 miles	$ 186,000

PA. ROUTE 536
Between Armstrong County Line and Pa. Route 28 northwest of Hawthorne

Limited Reconstruction	.7 mile	$ 23,000

PA. ROUTE 854
Between Pa. Route 861 and Pa. Route 238 in Elk Township

Limited Reconstruction	7.5 miles	$ 164,000
Limited Reconstruction	10.6 miles	230,000

PA. ROUTE 966
Between U.S. Route 322 in Clarion borough and Pa. Route 36 in Farmington Township

Limited Reconstruction	10.6 miles	$ 346,600

PA. ROUTE 68
Between U.S. Route 322 in Paint Township and U.S. Route 36 in Farmington Township

Limited Reconstruction	4.8 miles	$ 192,000

PA. ROUTE 378
Between Pa. Route 338 in Richland Township and Pa. Route 368 in Callensburg

Limited Reconstruction	5.3 miles	$ 149,000

PA. ROUTE 338
Between Butler County Line at Foxburg and Pa. Route 238 in Knox

New Construction	7.9 miles	$ 891,000

Limited Reconstruction	5.6 miles	269,000

CLEARFIELD COUNTY

PA. ROUTES 453 and 253
Between junction of Pa. Routes 453 and 253 in Gulich Township and their separation in Ramey

Limited Reconstruction	.6 mile	$ 26,000
Limited Reconstruction	.2 mile	5,500

PA. ROUTE 253
Between Pa. Route 453 in Ramey and Pa. Route 53 in Houtzdale

Limited Reconstruction	.7 mile	$ 27,500

PA. ROUTE 353
Between Pa. Route 53 in Houtzdale and U.S. Route 322 in Blue Ball

Limited Reconstruction	3.0 miles	$ 30,000
New Construction	6.8 miles	363,000

LEG. ROUTES 17056, 17057, and 17122
Between Pa. Route 53 in Osceola Mills and U.S. Route 322 north of Chester Hill

Limited Reconstruction	5.8 miles	$ 126,000

LEG. ROUTES 17061, 17063, and 17064
Between Pa. Route 53 in Morris Township and Pa. Route 53 in Cooper Township

New Construction	8.1 miles	$ 560,000

PA. ROUTE 153
Between Pa. Route 53 in Morris Township and U. S. Route 322 in Bradford Township

Limited Reconstruction	5.6 miles	$ 176,000

PA. ROUTE 53
Between Pa. Route 253 in Houtzdale and Cambria County Line

Limited Reconstruction	13.4 miles	$ 352,000
Limited Reconstruction	3.4 miles	143,000

LEG. ROUTES 17035 and 857
Between Pa. Route 453 west of Ramey and Pa. Route 453 (and also Pa. Route 259) in Janesville

New Construction	1.8 miles	$ 137,500

PA. ROUTE 453
Between Leg. Route 17030 west of Ramey and U.S. Route 322 in Curwensville

Limited Reconstruction	17.0 miles	$ 499,000

LEG. ROUTES 17022 and 17018
Between Pa. Route 53 in Irvona and Pa. Route 36 in Newburg

Limited Reconstruction	4.3 miles	$ 165,000
Limited Reconstruction	4.8 miles	128,000

PA. ROUTE 36
Between Cambria County Line and U.S. Route 219 in Mahaffey

Limited Reconstruction	11.3 miles	$ 341,000

LEG. ROUTES 17014 and 17015
Between U.S. Route 219 south of DuBois and U.S. Route 219 in DuBois at the intersection of DuBois Avenue and DuBois Street

Limited Reconstruction	2.5 miles	$ 121,000

PA. ROUTE 255 ALT.
Between Pa. Route 255 east of DuBois and U.S. Route 219 in DuBois at the intersection of Park Avenue and Liberty Boulevard

Limited Reconstruction	1.3 miles	$ 51,000

PA. ROUTE 951
Between Jefferson County Line and Pa. Route 153 north of Clearfield borough

Limited Reconstruction	20.2 miles	$ 752,000

LEG. ROUTE 17051
Between Pa. Route 879 in Clearfield borough and Pa. Route 879 (and also Pa. Route 970) in Goshen Township

Limited Reconstruction	5.9 miles	$ 253,000

PA. ROUTE 970
Between U.S. Route 322 in Woodland and Pa. Route 879 in Goshen Township

Limited Reconstruction	5.4 miles	$ 209,000

PA. ROUTE 879
Between Clearfield borough and Centre County Line

Limited Reconstruction	24.5 miles	$ 741,000

CLINTON COUNTY

PA. ROUTE 780
Between Pa. Route 64 at Centre County Line and Pa. Route 880 in Logantown

Limited Reconstruction	15.2 miles	$ 335,500

PA. ROUTE 880
Between Lycoming County Line and Pa. Route 64 south of Mill Hall

Limited Reconstruction	4.1 miles	$ 110,000
New Construction	2.8 miles	242,000
New Construction	4.5 miles	396,000

LEG. ROUTES 18041 and 18030
Between Pa. Route 780 in Porter Township and Pa. Route 880 in Lamar Township

Limited Reconstruction	5.2 miles	$ 88,000

PA. ROUTE 64
Between Centre County Line and U.S. Route 220 in Mill Hall

New Construction	9.4 miles	$ 1,479,500
Limited Reconstruction	.8 mile	24,000

LEG. ROUTE 18008
Between two sections of Pa. Route 64 in Lamar Township south of Mill Hall

New Construction	.7 mile	$ 121,000

LEG. ROUTE 18024
Between Leg. Route 18008 and Pa. Route 64 south of Mill Hall

New Construction	.1 mile	$ 16,500

PA. ROUTE 144
Between U.S. Route 120 in Renovo and Potter County Line

Limited Reconstruction	17.7 miles	$ 339,000

COLUMBIA COUNTY

PA. ROUTE 54
Between Northumberland County Line and Schuylkill County Line

Limited Reconstruction	2.0 miles	$ 44,000

LEG. ROUTE 19001
Between Schuylkill County Line and Pa. Route 42 north of Centralia

Limited Reconstruction	2.4 miles	$ 46,800

PA. ROUTE 44
Between Schuylkill County Line and Pa. Route 242 at Susquehanna River

Limited Reconstruction	4.2 miles	$ 42,000

PA. ROUTE 339
Between U.S. Route 11 (and also Pa. Route 44) in Bloomsburg and Pa. Route 115 south of Benton

New Construction	.9 mile	$ 99,000
New Construction	.6 mile	189,200
Limited Reconstruction	5.5 miles	143,000

PA. ROUTE 239
Between Luzerne County Line and Pa. Route 115 in Benton

Limited Reconstruction	4.2 miles	$ 77,000

PA. ROUTE 539
Between Lycoming County Line and Pa. Route 115 north of Benton

Limited Reconstruction	6.9 miles	$ 93,500

PA. ROUTES 115 and 44
Between the junction of Pa. Routes 115 and 44 in Madison Township and their separation at Pa. Route 254

Limited Reconstruction	1.1 miles	$ 23,600

PA. ROUTE 254
Between Montour County Line and Pa. Route 115 (and also Pa. Route 44) in Madison Township

Limited Reconstruction	2.4 miles	$ 60,500

PA. ROUTE 42
Between Pa. Route 442 in Pine Township and Lycoming County Line

Limited Reconstruction	5.6 miles	$ 132,000

CRAWFORD COUNTY

PA. ROUTE 89
Between Pa. Route 27 in Titusville, at the intersection of North Franklin Street and Central Avenue, and Pa. Route 77 in Spartansburg

New Construction	2.1 miles	$ 96,000

PA. ROUTE 77
Between Warren County Line and Pa. Route 27 in Meadville at the intersection of Hickory and Washington Streets

New Construction	3.1 miles	$ 137,000
Limited Reconstruction	7.6 miles	154,000
Limited Reconstruction	11.1 miles	333,000
Limited Reconstruction	.3 mile	10,000

PA. ROUTE 408
Between Pa. Route 8 in Hydetown and U.S. Route 6 (and also U.S. Route 19 and Pa. Route 86) in Cambridge Springs

Limited Reconstruction	2.6 miles	$ 46,000
Limited Reconstruction	6.0 miles	113,000
Limited Reconstruction	1.8 miles	40,500

PA. ROUTE 78
Between Mercer County Line and Pa. Route 27 in Randolph Township

Limited Reconstruction	2.6 miles	$ 94,500
Limited Reconstruction	4.7 miles	137,000

LEG. ROUTE 20085
Between Pa. Route 27 in East Mead Township and Pa. Route 198 in Randolph Township

Limited Reconstruction	2.8 miles	$ 58,000

LEG. ROUTE 20029
Between Pa. Route 78 east of Cochranton and U.S. Route 322 south of Meadville

New Construction	1.5 miles	$ 96,000

LEG. ROUTES 20011, 20018, and 20019
Between Pa. Route 78 in Cochranton and U.S. Route 19 in Greenwood Township

New Construction	7.8 miles	$ 463,500

PA. ROUTE 86
Between Erie County Line and Pa. Route 99 north of Cambridge Springs

New Construction	2.6 miles	$ 72,000

PA. ROUTE 86
Between U.S. Route 6 (and also U.S. Route 19 and Pa. Route 48) in Cambridge Springs and Pa. Route 27 in Meadville at the intersection of North Main and North Streets

Limited Reconstruction	.4 mile	$ 14,000

LEG. ROUTE 20060
Between U.S. Route 6 (and also U.S. Route 19) in Venango borough and Pa. Route 99 in Venango Township

New Construction	3.9 miles	$ 300,000

LEG. ROUTE 20053

In Meadville on Spring Street, between Baldwin and Terrace Streets

Limited Reconstruction	.2 mile	$ 8,000

LEG. ROUTE 20046

Between U.S. Route 6 east of Linesville and Pa. Route 98 west of Meadville

New Construction	3.1 miles	$ 155,000
New Construction	7.7 miles	407,000

PA. ROUTE 18

Between U.S. Route 6 (and also U.S. Route 322) east of Conneaut Lake and Erie County Line

Limited Reconstruction	4.5 miles	$ 96,000
Limited Reconstruction	2.8 miles	69,000
New Lane Construction	.6 mile	66,000

U.S. ROUTE 6

Between U.S. Route 322 in Conneaut Lake and Ohio State Line

Limited Reconstruction	3.1 miles	$ 64,000
Limited Reconstruction	.8 mile	24,000
New Construction	1.6 miles	223,000

LEG. ROUTE 20006

Between Pa. Route 285 and U.S. Route 6 in Linesville

New Construction	2.3 miles	$ 121,000
New Construction	.2 mile	13,000

LEG. ROUTE 20039

Between Erie County Line at State Game Lands and U.S. Route 6 in Conneaut Township

Limited Reconstruction	11.5 miles	$ 271,000

U.S. ROUTE 322

Between Leg. Route 20029 south of Meadville and Pa. Route 27 in Meadville at the intersection of North and Liberty Streets

Limited Reconstruction	1.2 miles	$ 27,000
Limited Reconstruction	.5 mile	18,000

CUMBERLAND COUNTY

PA. ROUTE 233

Between Adams County Line and Pa. Route 34 in South Mountain Township

Limited Reconstruction	1.8 miles	$ 144,100

PA. ROUTE 33

Between U.S. Route 11 in Shippensburg and Pa. Route 34 in Carlisle

Limited Reconstruction	17.3 miles	$ 902,800

PA. ROUTE 174

Between Pa. Route 33 in Dickinson Township and Pa. Route 641 west of Mechanicsburg

Limited Reconstruction	3.9 miles	$ 233,100
New Construction	6.3 miles	547,000

PA. ROUTE 641

Between Franklin County Line and U.S. Route 11 in Carlisle

Limited Reconstruction	1.9 miles	$ 93,500
Limited Reconstruction	.1 mile	5,600
Limited Reconstruction	4.0 miles	163,600

PA. ROUTE 641

Between U.S. Route 11 in Carlisle and U.S. Route 11 in Camp Hill

Limited Reconstruction	8.6 miles	$ 582,000
New Construction	.6 mile	215,000
New Lane Construction	2.8 miles	160,800
New Construction	.3 mile	37,400

PA. ROUTE 696

Between Franklin County Line and U.S. Route 11 in Shippensburg

Limited Reconstruction	.2 mile	$ 11,600

PA. ROUTE 696

Between U.S. Route 11 in Shippensburg and Pa. Route 641 in Newburg

Limited Reconstruction	.2 mile	$ 11,300
Limited Reconstruction	1.4 miles	77,200
Limited Reconstruction	2.4 miles	131,800

PA. ROUTE 533

Between U.S. Route 11 northwest of Shippensburg and Pa. Route 233 in Newville

New Construction	8.7 miles	$ 940,800

PA. ROUTE 233

Between U.S. Route 11 in Pennsboro Township and Pa. Route 641 in Newville

New Construction	.9 mile	$ 144,300

OLD U.S. ROUTE 111

Between York County Line and the intersection of South Bridge approach and new U.S. Route 11

Limited Reconstruction	2.0 miles	$ 128,800

PA. ROUTE 74

Between Perry County Line and U.S. Route 11 in Carlisle

Limited Reconstruction	7.3 miles	$ 461,800

PA. ROUTE 75

Between U.S. Route 11 in Carlisle and York County Line

Limited Reconstruction	1.0 mile	$ 41,400
New Construction	7.5 miles	641,300

PA. ROUTE 114

Between U.S. Route 11 in Silver Spring Township and Pa. Route 641 in Mechanicsburg on Main Street

Limited Reconstruction	2.4 miles	$ 132,700
New Construction	.5 mile	27,000

PA. ROUTE 114

Between Pa. Route 641 in Mechanicsburg, at the intersection of Main and Market Streets, and York County Line

Limited Reconstruction	.4 mile	$ 12,400
New Construction	3.3 miles	358,700

LEG. ROUTE 21022
Between old U.S. Route 15 south of Camp Hill and Old U.S. Route 111 in New Cumberland at the intersection of Eighth and Bridge Streets

New Construction	1.6 miles	$	220,700

U.S. ROUTE 15
Between Pa. Route 214 and Leg. Route 21022 south of Camp Hill

Limited Reconstruction	.8 mile	$	85,700

OLD U.S. ROUTE 11 ALT.
Between new U.S. Route 11 west of Camp Hill and U.S. Route 111 in Lemoyne at the intersection of Third and Market Streets

Limited Reconstruction	1.3 miles	$	101,200
New Lane Construction	.9 mile		91,600

LEG. ROUTES 21015 and 21074
Between U.S. Route 11 in Camp Hill and Leg. Route 21051 north of Enola

New Construction	4.3 miles	$	570,100

LEG. ROUTE 21051
Between Leg. Route 21074 and U.S. Route 11 (and also U.S. Route 15) north of Enola

Limited Reconstruction	1.8 miles	$	96,100

PA. ROUTE 944
Between Leg. Route 21012 in Middlesex Township and U.S. Route 11 (and also U.S. Route 15) in West Fairview

Limited Reconstruction	3.7 miles	$	183,000
Limited Reconstruction	1.4 miles		55,800

LEG. ROUTE 21012
Between Pa. Route 944 and Pa. Route 34 in Middlesex Township

Limited Reconstruction	1.2 miles	$	63,000

DAUPHIN COUNTY

PA. ROUTE 341
Between Lebanon County Line and U.S. Route 230 east of Middletown

Limited Reconstruction	2.4 miles	$	24,200
Limited Reconstruction	.9 mile		11,000

PA. ROUTE 441
Between U.S. Route 230 in Middletown and U.S. Route 322 (and also U.S. Route 422) at Harrisburg City Line

Limited Reconstruction	7.6 miles	$	55,000

U.S. ROUTE 230
In Harrisburg, between old U.S. Route 322 (and also old U.S. Route 422), at the intersection of Cameron and Paxton Streets, and U.S. Route 22 at the intersection of Maclay and Cameron Streets

Limited Reconstruction	2.0 miles	$	95,700

LEG. ROUTES 22016 and 22017
Between U.S. Route 230 in Middletown and U.S. Route 322 (and also U.S. Route 422) in Hummelstown

Limited Reconstruction	4.5 miles	$	64,400

PA. ROUTE 340 and LEG. ROUTES A-306 and 22006
Between Pa. Route 340 south of Hershey and U.S. Route 22

Limited Reconstruction	7.7 miles	$	87,400

PA. ROUTE 743
Between Pa. Route 340 in Hershey and U.S. Route 22 in East Hanover Township

Limited Reconstruction	6.7 miles	$	147,400

PA. ROUTE 340
Between Leg. Route A-306 west of Hershey and Pa. Route 543 (and also Pa. Route 643) in Progress

New Construction	.4 mile	$	39,600
New Construction	3.6 miles		266,200

LEG. ROUTE 22023
Between U.S. Route 22 (and also U.S. Route 230) in Harrisburg at the intersection of Cameron and Maclay Streets, and Pa. Route 39 in Susquehanna Township

New Construction	1.0 mile	$	97,900

PA. ROUTE 39
Between U.S. Route 22 at Lucknow, through Linglestown, and U.S. Route 22

Limited Reconstruction	10.1 miles	$	106,700

PA. ROUTE 443
Between Susquehanna River at Fort Hunter and Lebanon County Line

New Construction	1.4 miles	$	132,000

PA. ROUTE 225
Between U.S. Route 22 (and also U.S. Route 322 and Pa. Route 14) in Dauphin borough and Northumberland County Line

Limited Reconstruction	1.8 miles	$	30,800
Limited Reconstruction	4.5 miles		38,600
Limited Reconstruction	.5 mile		9,900
Limited Reconstruction	6.7 miles		139,700

LEG. ROUTE 22003
Between Pa. Route 225 in Halifax Township and Pa. Route 225 in Jackson Township

Limited Reconstruction	2.4 miles	$	15,400

LEG. ROUTES 22035 and 22001
Between U.S. Route 209 in Washington Township and Pa. Route 225 south of Uniontown

Limited Reconstruction	1.2 miles	$	74,800
Limited Reconstruction	.3 mile		1,400

PA. ROUTE 25
Between Schuylkill County Line and U.S. Route 209 in Millersburg

Limited Reconstruction	3.7 miles	$	99,800
Limited Reconstruction	4.7 miles		81,200

LEG. ROUTES 22034 and 22001
Between Schuylkill County Line and Pa. Route 25 in Gratz

New Construction	2.6 miles	$	177,100

DELAWARE COUNTY

PA. ROUTE 100
Between Chester County Line, south across U.S. Route 1, and back to Chester County Line

New Construction	1.9 miles	$ 312,000

PA. ROUTE 491
Between U.S. Route 202 in Concord Township and Delaware State Line

New Construction	5.7 miles	$ 1,000,000

PA. ROUTE 261
Between new U.S. Route 322 in Bethel Township and Delaware State Line

New Construction	2.1 miles	$ 398,000

LEG. ROUTES 23016, A-6254, and 23017
Between U.S. Route 1 north of Chester Heights and old U.S. Route 322 at Fisher's Corner

Limited Reconstruction	.5 mile	$ 29,000

OLD U.S. ROUTE 322
Between Leg. Route 23017 at Fisher's Corner and new U.S. Route 322 (and also Leg. Route 23011) north of Chester city

Limited Reconstruction	2.2 miles	$ 52,500
New Construction	.2 miles	24,000

PA. ROUTE 352
Between Chester County Line and U.S. Route 1 at Black Horse

New Construction	2.4 miles	$ 436,000
New Construction	1.0 mile	132,000

U.S. ROUTE 13
Between Pa. Route 420 in Prospect Park and Pa. Route 191 in Glenolden

New Construction	1.0 mile	$ 445,000

PA. ROUTE 191
Between U.S. Route 13 in Glenolden and Philadelphia Line

New Construction	.4 mile	$ 161,000
New Construction	1.2 miles	575,000

PA. ROUTE 420
Between U.S. Route 1 By-Pass (and also Pa. Route 320) and Pa. Route 291 near Delaware River

New Construction	3.6 miles	$ 1,665,000
New Lane Construction	2.0 miles	474,000

LEG. ROUTE 23070

Between Pa. Route 252 in Nether Providence Township and Pa. Route 320 in Swarthmore

Limited Reconstruction	1.0 mile	$ 33,500

PA. ROUTE 252
Between Chester County Line at Radnor Township and Pa. Route 320 north of Parkside

New Construction	.4 mile	$ 46,500
Limited Reconstruction	2.9 miles	111,800
New Construction	8.6 miles	2,150,000

LEG. ROUTE 23034
Between Chester County Line and Pa. Route 252 in Newtown Township

Limited Reconstruction	1.7 miles	$ 32,000

LEG. ROUTE 23035
Between Pa. Route 3 and Pa. Route 320 in Radnor Township

Limited Reconstruction	2.2 miles	$ 99,000

LEG. ROUTES 580 SPUR E and 23065
Between Pa. Route 320 and U.S. Route 13 in Darby

New Construction	.9 mile	$ 155,000
Limited Reconstruction	1.0 mile	182,000
New Construction	1.2 miles	202,000
Limited Reconstruction	2.1 miles	255,000

KERLIN STREET
In Upland, between Chester River and Leg. Route 23013 at Upland Avenue

New Construction	.1 mile	$ 37,500

LEG. ROUTE 23013
Between Upland, at Kerlin Street, and Leg. Route 23013 Spur E

New Construction	.3 mile	$ 69,000

PA. ROUTE 320
In Radnor Township between U.S. Route 30 and Montgomery County Line

New Construction	.6 mile	$ 130,000

LEG. ROUTE 23047
Between Pa. Route 320 and Pa. Route 3 in Haverford Township

Limited Reconstruction	1.5 miles	$ 61,000
New Lane Construction	.4 mile	369,000

LEG. ROUTE 23049
Between Pa. Route 3 in Haverford Township and Montgomery County Line

Limited Reconstruction	2.0 miles	$ 78,000

LEG. ROUTE 577 (CONESTOGA ROAD)
In Haverford Township, between U.S. Route 30 and Pa. Route 252

Limited Reconstruction	1.1 miles	$ 21,000

ELK COUNTY

LEG. ROUTE 24009
Between U.S. Route 219 and Pa. Route 948 at Kersey

Limited Reconstruction	7.4 miles	$ 470,000

PA. ROUTE 24011
Between McKean County Line and U.S. Route 219 at Wilcox

Limited Reconstruction	7.8 miles	$ 99,000

PA. ROUTE 948
Between Forest County Line and Pa. Route 68 at Chaffee

Limited Reconstruction	1.7 miles	$	44,000

ERIE COUNTY

PA. ROUTE 426
Between New York State Line and U.S. Route 6 in Corry

Limited Reconstruction	1.3 miles	$	31,000

PA. ROUTE 277
Between Crawford County Line and Pa. Route 426 in Corry

Limited Reconstruction	.9 mile	$	29,000
Limited Reconstruction	1.9 miles		41,000

PA. ROUTE 89
Between U.S. Route 6 at Elgin Borough Line and Pa. Route 8 south of Wattsburg

Limited Reconstruction	.6 mile	$	19,000

PA. ROUTE 74
Between New York State Line and Pa. Route 8 in Wattsburg

Limited Reconstruction	1.5 miles	$	38,000

PA. ROUTE 79
Between Crawford County Line and U.S. Route 6 in Union City

Limited Reconstruction	2.2 miles	$	58,000

PA. ROUTE 8
Between Pa. Route 89 north of Wattsburg and U.S. Route 20 (and also Pa. Route 97) in Erie city at the intersection of Pine Avenue and East 28th Street

Limited Reconstruction	5.2 miles	$	349,000
Limited Reconstruction	4.7 miles		110,000
New Construction	1.9 miles		239,000

LEG. ROUTES 25057, 25060, and 25068
Between Pa. Route 8 in Amity Township and U.S. Route 20 east of Wesleyville

Limited Reconstruction	4.7 miles	$	109,000
New Construction	4.9 miles		183,000
Limited Reconstruction	1.6 miles		18,000
New Construction	.4 mile		36,000
Limited Reconstruction	3.6 miles		33,000

LEG. ROUTE 25067
Between New York State Line and Wesleyville

Limited Reconstruction	2.1 miles	$	98,000

LEG. ROUTES 25066, A-4709, and A-85
Between Pa. Route 8 south of Erie city, circling outside Erie city, and U.S. Route 20 in Wesleyville

Limited Reconstruction	.8 mile	$	24,000
New Construction	.5 mile		81,000

LEG. ROUTE 25064
Between U.S. Route 20 in Wesleyville and Pa. Route 5 in Lawrence Park

New Lane Construction	1.0 mile	$	79,000

LEG. ROUTE A-6520
Between U.S. Route 20 in North East and Orchard Beach at Lake Erie

Limited Reconstruction	1.4 miles	$	31,000

LEG. ROUTE 25056
Between U.S. Route 19 in Waterford and Pa. Route 8 in Greene Township

New Construction	.2 mile	$	11,000

PA. ROUTE 505
Between Pa. Route 97 south of Erie city and U.S. Route 20 in Erie city at the intersection of Glenwood Avenue and East 26th Street

Limited Reconstruction	3.3 miles	$	137,000

PA. ROUTE 86
Between Crawford County Line and U.S. Route 19 in Waterford Township

New Construction	3.1 miles	$	92,000

LEG. ROUTE 25016
Between U.S. Route 20 in Girard and Leg. Route 25017 west of Middleboro

Limited Reconstruction	5.3 miles	$	116,000

LEG. ROUTES 25004 and 25005, and PA. ROUTE 18
Between U.S. Route 6N (and also Pa. Route 18) in Albion and U.S. Route 20 south of North Girard

Limited Reconstruction	7.2 miles	$	171,500
New Construction	.9 mile		191,000

LEG. ROUTES 25008, 25020, and 25019
Between U.S. Route 20 in Girard and Pa. Route 5 north of North Girard

New Construction	.4 mile	$	124,000

LEG. ROUTES 25002, 25079, 25004, 25007, and 25007 SPUR E
Between U.S. Route 6N west of Albion and Pa. Route 5 north of Springfield

New Construction	1.2 miles	$	38,000
Limited Reconstruction	2.7 miles		63,000

FAYETTE COUNTY

PA. ROUTE 281
Between West Virginia State Line, through Markleysburg, and U.S. Route 40

Limited Reconstruction	3.9 miles	$	154,400

PA. ROUTE 281
Between U.S. Route 40 and Somerset County Line

Limited Reconstruction	7.4 miles	$	104,500

LEG. ROUTE 26067
Between Maryland State Line and Pa. Route 281 in Markleysburg

Limited Reconstruction	1.1 miles	$	22,500

PA. ROUTE 711

Between Indian Head and Westmoreland County Line

Limited Reconstruction	2.5 miles	$	47,700

LEG. ROUTES 26055, 26046, and 26044

Between Pa. Route 711 in Melcroff and old Pa. Route 119 in Connellsville at the intersection of East Crawford and Breakneck Road

Limited Reconstruction	10.0 miles	$	314,400

LEG. ROUTE 26051

Between Leg. Route 26046 at Buchanan White Post Office and Pa. Route 982 east of Hammondville

Limited Reconstruction	1.7 miles	$	42,800

LEG. ROUTE 26151

Between Westmoreland County Line and Pa. Route 119 in Pennsville

Limited Reconstruction	3.2 miles	$	129,600

OLD U.S. ROUTE 119

Between new U.S. Route 119 north of Connellsville and Connellsville at the intersection of Snyder Street and East Crawford Avenue

Limited Reconstruction	.4 mile	$	13,800

LEG. ROUTES A-2406 and 26040

Between U.S. Route 40 in Chalkhill and Leg. Route 26071 west of Ohiopyle

Limited Reconstruction	6.6 miles	$	88,600

LEG. ROUTE 26115

Between U.S. Route 40 and Leg. Route 26045 in Coolspring

Limited Reconstruction	5.4 miles	$	43,900

LEG. ROUTE 26047 and OLD U.S. ROUTE 119

Between U.S. Route 119, through Lemont Furnace and Dunbar, and U.S. Route 119

New Construction	.7 mile	$	80,000
Limited Reconstruction	1.4 miles		36,200
Limited Reconstruction	3.1 miles		93,400
Limited Reconstruction	.9 mile		18,100

LEG. ROUTE 26045

Between U.S. Route 119 and U.S. Route 40 in Hopwood

Limited Reconstruction	3.4 miles	$	161,200

T-455, T-629, and MAIN STREET in FAIRCHANCE

Between U.S. Route 40 in Hopwood and Fairchance

Limited Reconstruction	3.0 miles	$	117,600
New Construction	.5 mile		55,300

LEG. ROUTES 26035 and 26152

Between Leg. Route 26082 in Fairchance and U.S. Route 119 in Chadville

Limited Reconstruction	2.3 miles	$	214,800

LEG. ROUTE 26041

Between U.S. Route 119 in Uniontown, through Leith, and U.S. Route 119

Limited Reconstruction	1.5 miles	$	30,800

LEG. ROUTES 26177, 26057, and 26111; T-508, and MORGANTOWN STREET in FAIRCHANCE

Between West Virginia State Line and Fairchance

Limited Reconstruction	2.4 miles	$	50,700
Limited Reconstruction	3.7 miles		114,200

LEG. ROUTE 26111

Between T-508 and U.S. Route 119 in Smithfield

Limited Reconstruction	1.3 miles	$	35,100

PA. ROUTE 266

Between U.S. Route 119 in Smithfield and Pa. Route 166

Limited Reconstruction	5.8 miles	$	201,600

LEG. ROUTE 26080

Between West Virginia State Line and U.S. Route 199 relocated at Locust Hill

New Construction	2.2 miles	$	313,100

LEG. ROUTE 26077, T-467, T-474 and LEG. ROUTE 26163

Between Pa. Route 266 and U.S. Route 119 in South Uniontown

Limited Reconstruction	8.5 miles	$	452,800

LEG. ROUTE 26082 and T-510

Between Leg. Route 26035 in Fairchance and U.S. Route 119

Limited Reconstruction	.9 mile	$	36,800

LEG. ROUTE 26010

Between Edenborn and Leg. Route 26008 in Lechrone

Limited Reconstruction	2.3 miles	$	107,500

LEG. ROUTE 26008

Between Masontown and Leg. Route 26010 in Lechrone

New Construction	2.6 miles	$	322,000

LEG. ROUTE 112

Between Leg. Route 26004 west of Tower Hill and U.S. Route 40 near county home

Limited Reconstruction	9.1 miles	$	507,500

LEG. ROUTE 26004

Between Leg. Route 26072 and Leg. Route 112

Limited Reconstruction	1.0 mile	$	9,900

LEG. ROUTE 26036

Between U.S. Route 40 in Brier Hill and Leg. Route 26098

Limited Reconstruction	.9 mile	$	13,600

LEG. ROUTES 26098 and A-496

Between U.S. Route 40 in Brownsville and Leg. Route 26072

Limited Reconstruction	4.5 miles	$	138,900

LEG. ROUTE 26018

Between U.S. Route 40 in Brownsville and Pa. Route 711

Limited Reconstruction	6.0 miles	$	387,800

LEG. ROUTES 26024 and 26085
Between Pa. Route 51 in Waltersburg and Pa. Route 51 (and also Pa. Route 711)

Limited Reconstruction	8.6 miles	$	346,500

LEG. ROUTES 26013, A-678, 288, and 26137
Between Pa. Route 711, through Lynn and Perryopolis, and Pa. Route 51 relocated

Limited Reconstruction	3.5 miles	$	197,300
Limited Reconstruction	.4 mile		24,600

LEG. ROUTES 26019 and 26122
Between Pa. Route 51 and Pa. Route 711 in Vanderbilt

Limited Reconstruction	4.0 miles	$	107,300

PA. ROUTE 819
Between Pa. Route 711 in Vanderbilt and Westmoreland County Line

New Construction	.7 mile	$	323,800
Limited Reconstruction	4.4 miles		154,400

LEG. ROUTES 26032, 26100, and 26093
Between Pa. Route 711 in Connellsville, at the intersection of Crawford Avenue and Ninth Street, and Leg. Route 26019 in Laurel Hill

Limited Reconstruction	4.8 miles	$	307,500

FOREST COUNTY

PA. ROUTE 948
Between Warren County Line and Elk County Line

Limited Reconstruction	3.1 miles	$	110,000

PA. ROUTE 899
Between Jefferson County Line and Pa. Route 68

New Construction	10.4 miles	$	550,000

PA. ROUTE 666
Between Warren County Line and Leg. Route 27009

New Construction	13.6 miles	$	655,000

LEG. ROUTES 27007 and 27009
Between U.S. Route 62 and Pa. Route 666

New Construction	.9 mile	$	38,500

FRANKLIN COUNTY

PA. ROUTE 81
Between Maryland State Line and Pa. Route 16 in Blue Ridge Summit

Limited Reconstruction	.7 mile	$	40,800

PA. ROUTE 997
Between Maryland State Line and Pa. Route 16 in Waynesboro

New Construction	1.6 miles	$	273,200
Limited Reconstruction	.3 mile		2,200

PA. ROUTE 997
Between Pa. Route 16 in Waynesboro and T-510 south of Fayettesville

Limited Reconstruction	.3 mile	$	3,300
Limited Reconstruction	4.7 miles		118,800
Limited Reconstruction	4.1 miles		140,800

T-510 and LEG . ROUTE 28054
Between Pa. Route 997 south of Fayetteville and Leg. Route 28009 southeast of Fayetteville

New Construction	.2 mile	$	24,000
Limited Reconstruction	1.5 miles		49,800

PA. ROUTE 233
Between Pa. Route 997 in Mont Alto and Adams County Line

Limited Reconstruction	4.6 miles	$	183,600
New Construction	1.2 miles		92,400

LEG. ROUTE 28009 and PA. ROUTE 997
Between Pa. Route 997 (and also Pa. Route 233) in Mont Alto and Pa. Route 696 east of State Soldiers Orphan School

New Construction	4.9 miles	$	282,600
Limited Reconstruction	5.4 miles		290,300

LEG. ROUTE 28003
Between Pa. Route 997 at Duffield and U.S. Route 30 east of Chambersburg

New Construction	4.8 miles	$	401,400

LEG. ROUTES A-230 and 28020
Between U.S. Route 11 at Marion and Pa. Route 997 at Duffield

New Construction	7.1 miles	$	454,300

LEG. ROUTE 887
Between Maryland State Line and Pa. Route 16 in Greencastle

Limited Reconstruction	4.6 miles	$	177,100

PA. ROUTE 416
Between Maryland State Line and Pa. Route 995 in Montgomery Township

Limited Reconstruction	1.7 miles	$	81,000

PA. ROUTE 995
Between Pa. Route 416 and Pa. Route 16 in Montgomery Township

Limited Reconstruction	3.4 miles	$	16,000

PA. ROUTE 995
Between Leg. Route 28002, north of Pa. Route 16, and U.S. Route 30 west of Chambersburg

Limited Reconstruction	2.6 miles	$	91,300
New Construction	2.0 miles		272,300
Limited Reconstruction	3.6 miles		89,600

LEG. ROUTE 28002
Between Pa. Route 16 at Upton and Pa. Route 416 at Markes

Limited Reconstruction	5.9 miles	$	270,600

PA. ROUTE 75

Between Maryland State Line and Pa. Route 16 in Mercersburg

Limited Reconstruction	3.2 miles	$	144,300
Limited Reconstruction	3.6 miles		151,500

PA. ROUTE 75

Between Pa. Route 16 in Mercersburg and U.S. Route 30 in Peters Township

Limited Reconstruction	4.7 miles	$	260,000

PA. ROUTE 416

Between Pa. Route 75 in Peters Township and U.S. Route 30 in St. Thomas Township

New Construction	.9 mile	$	77,500
Limited Reconstruction	3.7 miles		225,600

PA. ROUTE 75

Between U.S. Route 30 in Peters Township and Juniata County Line

Limited Reconstruction	10.6 miles	$	449,900
Limited Reconstruction	3.9 miles		198,000
Limited Reconstruction	4.1 miles		262,700
New Lane Construction	.1 mile		7,300
Limited Reconstruction	4.8 miles		308,800
New Construction	.6 mile		45,000

PA. ROUTE 641

Between Pa. Route 433 west of Pennsylvania Turnpike and Cumberland County Line

Limited Reconstruction	4.0 miles	$	226,000
Limited Reconstruction	4.4 miles		195,000

PA. ROUTE 433

Between Pa. Route 641 in Lurgan Township and Pa. Route 533 in Orrstown

Limited Reconstruction	1.8 miles	$	94,400
New Construction	.3 mile		28,700

PA. ROUTE 533

Between Pa. Route 433 in Orrstown and Cumberland County at Shippensburg

New Construction	.2 mile	$	24,900
Limited Reconstruction	4.0 miles		250,200

PA. ROUTE 333

Between Pa. Route 433 in Lurgan Township and Pa. Route 433 at Culbertson

Limited Reconstruction	.4 mile	$	19,200

PA. ROUTE 696

Between Cumberland County Line and U.S. Route 11 in Chambersburg

Limited Reconstruction	10.2 miles	$	603,600

PA. ROUTE 333

Between U.S. Route 30 in Chambersburg and Leg. Route 28006 north of Chambersburg

Limited Reconstruction	1.2 miles	$	75,200

LEG. ROUTES 28005 and 28006

Between U.S. Route 30, through Edenville, and Pa. Route 333 north of Chambersburg

Limited Reconstruction	7.3 miles	$	366,600
Limited Reconstruction	1.6 miles		55,900

FULTON COUNTY

PA. ROUTE 928

Between Maryland State Line and Pa. Route 76 (and also Pa. Route 176) in Hustontown

Limited Reconstruction	3.2 miles	$	72,300
Limited Reconstruction	10.4 miles		384,000

PA. ROUTE 76

On Huntingdon County Line east of New Granada

Limited Reconstruction	.9 mile	$	14,000

PA. ROUTE 848

Between Huntingdon County Line and Pa. Route 915 at Wells Tannery

Limited Reconstruction	5.7 miles	$	93,500

PA. ROUTE 915

Between Bedford County Line and U.S. Route 30

New Construction	3.4 miles	$	242,000

GREENE COUNTY

PA. ROUTE 121

Between West Virginia State Line and Pa. Route 21 at county home

New Construction	2.8 miles	$	231,600
Limited Reconstruction	.6 mile		15,500
New Construction	5.6 miles		980,000

LEG. ROUTE 112

Between Fayette County Line and Pa. Route 88 (and also Pa. Route 21) east of Carmichaels

Limited Reconstruction	.7 mile	$	8,200

LEG. ROUTES 30056 and 30025

Between Monongahela River and Pa. Route 88 in Rice's Landing

Limited Reconstruction	1.1 miles	$	29,500

LEG. ROUTES 30055 and 30081

Between Washington County Line and Clarksville

Limited Reconstruction	2.8 miles	$	87,300

LEG. ROUTE 30051

Between Pa. Route 88 north of Rice's Landing and Leg. Route 30103 in Clarksville

Limited Reconstruction	.9 mile	$	11,200
New Construction	1.3 mile		73,800
Limited Reconstruction	.2 mile		5,300

LEG. ROUTE 30103

Between Leg. Route 30051 in Clarksville and Leg. Route 30055

Limited Reconstruction	1.5 miles	$	22,800

PA. ROUTE 221

Between Pa. Route 188 and U.S. Route 19 at Ruff Creek

Limited Reconstruction	4.9 miles	$	89,000

LEG. ROUTES 30080 and 30050

Between Pa. Route 221 at Lippincott, through Castle School, and Leg. Route 30055 at Castile Run

New Construction	2.3 miles	$	158,800

LEG. ROUTE 30022

Between West Virginia State Line and Pa. Route 121 in Dunkard Township

New Construction	2.7 miles	$	140,900
Limited Reconstruction	.4 mile		4,400
New Construction	1.0 mile		49,100

PA. ROUTE 218

Between West Virginia State Line and Pa. Route 188 in Waynesboro

Limited Reconstruction	1.1 miles	$	24,400
Limited Reconstruction	3.0 miles		80,800

PA. ROUTE 18

Between Washington County Line and Pa. Route 188 in Waynesboro

Limited Reconstruction	8.2 miles	$	207,500

LEG. ROUTES 30039, 30003, 30042, and 30088

Between Pa. Route 21 at Ryerson and Pa. Route 18 in Holbrook

New Construction	4.0 miles	$	118,100
Limited Reconstruction	2.3 miles		44,600
Limited Reconstruction	1.8 miles		27,200

LEG. ROUTES 30001 and 30004

Between Pa. Route 21 at Ryerson and Pa. Route 18 at Nettle Hill

New Construction	2.4 miles	$	76,800
New Construction	.9 mile		52,000
Limited Reconstruction	.7 mile		15,100

LEG. ROUTES 30045

Between West Virginia State Line and Pa. Route 18 at Nettle Hill

New Construction	4.4 miles	$	373,500

LEG. ROUTE 30045

On West Virginia State Line through Brave

Limited Reconstruction	1.7 miles	$	73,000

LEG. ROUTE 30055

Between Pa. Route 188 in Jefferson and Leg. Route 30050 at Castile Run

Limited Reconstruction	1.4 miles	$	26,100

HUNTINGDON COUNTY

PA. ROUTE 35

Between U.S. Route 522 in Shade Gap and Juniata County Line

New Construction	13.1 miles	$	694,100

PA. ROUTE 377

Between Pa. Route 276 in Three Springs and U.S. Route 522 in Orbisonia

Limited Reconstruction	7.0 miles	$	156,300

PA. ROUTE 276

Between Fulton County Line, through Three Springs, and U.S. Route 522 at Mt. Union

New Construction	11.8 miles	$	746,900

PA. ROUTE 76

Between Pa. Route 376 in Saltillo, through Cassville, and U.S. Route 22 west of Mill Creek

New Construction	1.8 miles	$	110,000
Limited Reconstruction	4.9 miles		79,200

PA. ROUTE 76

Between U.S. Route 22 at Mill Creek and Mifflin County Line

Limited Reconstruction	2.1 miles	$	64,900
Limited Reconstruction	5.8 miles		151,800

LEG. ROUTES 31012 and A-4973

Between Bedford County Line and Broad Top City

New Construction	1.6 miles	$	130,000

LEG. ROUTE 31011

Between Leg. Route 31012 near Bedford County Line and Robertsdale

New Construction	2.0 miles	$	127,100

PA. ROUTE 994, LEG. ROUTE 31094, and PA. ROUTE 847

Between Robertsdale and Cassville

New Construction	6.4 miles	$	388,300

PA. ROUTE 985

Between U.S. Route 22 in Huntingdon borough and Pa. Route 545

Limited Reconstruction	.2 mile	$	5,500
New Construction	3.2 miles		176,100

PA. ROUTE 26

Between Pennsylvania Industrial School west of Huntingdon borough and U.S. Route 22 in Huntingdon borough

Limited Reconstruction	1.6 miles	$	33,000

U.S. ROUTE 22

In Huntingdon borough, between Pa. Route 545 and Pa. Route 26

Limited Reconstruction	.1 mile	$	1,800

PA. ROUTE 305

Between U.S. Route 22 south of Alexandria, through Petersburg, and Pa. Route 545 at Ennisville

New Construction	3.0 miles	$	138,700
Limited Reconstruction	.6 mile		11,000
New Construction	11.3 miles		611,600
Limited Reconstruction	.9 mile		15,600
New Construction	1.4 miles		70,200

PA. ROUTE 305
Between Pa. Route 545 at McAlevy's Fort and Mifflin County Line

New Construction	6.9 miles	$ 373,500

PA. ROUTE 45
Between Pa. Route 350 in Morris Township and Centre County Line

New Construction	11.6 miles	$ 1,007,700

Between Blair County Line, through Warriors Mark Township, and Centre County Line

New Construction	.5 mile	$ 40,700
New Construction	.9 mile	58,300
New Construction	3.4 miles	234,300

PA. ROUTE 450
Between Pa. Route 45 and Blair County Line

New Construction	1.0 mile	$ 66,000

INDIANA COUNTY

LEG. ROUTES 32020, 32027, and 32021; PA. ROUTE 480, and LEG. ROUTE 32045
Between U.S. Route 22 and Pa. Route 553 in Alverda

Limited Reconstruction	10.7 miles	$ 262,100

PA. ROUTE 553
Between Pa. Route 480 and Cambria County Line east of Alverda

Limited Reconstruction	3.3 miles	$ 82,500

LEG. ROUTES 32009, 32008, and 32011
Between Westmoreland County Line and Pa. Route 259 in West Wheatfield Township

Limited Reconstruction	.3 mile	$ 24,000
Limited Reconstruction	2.7 miles	64,000

PA. ROUTE 259
Between Westmoreland County Line at Robinson and U.S. Route 422 in Pine Township

Limited Reconstruction	5.0 miles	$ 143,000
Limited Reconstruction	2.4 miles	39,600

LEG. ROUTES 32037, 32036, and A-268
Between Pa. Route 56 (and also Pa. Route 259) in Valley Township and U.S. Route 119 (and also U.S. Route 422) in Indiana borough

Limited Reconstruction	8.1 miles	$ 326,500

PA. ROUTE 56
Between Pa. Route 844 in Young Township and Pa. Route 259 in Valley Township

New Construction	1.5 miles	$ 89,000
Limited Reconstruction	6.5 miles	217,000
Limited Reconstruction	2.0 miles	91,000
Limited Reconstruction	2.2 miles	57,000

PA. ROUTE 844
Between Pa. Route 80 and Pa. Route 56 in Young Township

Limited Reconstruction	1.3 miles	$ 40,700

PA. ROUTE 680
Between Westmoreland County Line north of Jacksonville and Pa. Route 80

New Lane Construction	.4 mile	$ 71,000
Limited Reconstruction	1.9 miles	76,000
Limited Reconstruction	6.4 miles	258,000

PA. ROUTE 110
Between Pa. Route 119 and Pa. Route 954 north of Creekside

Limited Reconstruction	5.6 miles	$ 155,700

PA. ROUTE 954
Between Pa. Route 110 north of Creekside and Pa. Route 85 west of Blumville

Limited Reconstruction	3.4 miles	$ 78,000

LEG. ROUTES 32097 and 32142
Between Armstrong County Line and Pa. Route 954 in Smicksburg

Limited Reconstruction	2.4 miles	$ 36,100

PA. ROUTE 80
Between U.S. Route 422 in Indiana borough and Pa. Route 480 in Clymer

Limited Reconstruction	5.8 miles	$ 478,000
New Construction	2.7 miles	632,000

PA. ROUTE 843
Between Pa. Route 80 in Commodore and Pa. Route 580 at Uniontown

Limited Reconstruction	6.7 miles	$ 174,000

PA. ROUTE 580
Between Pa. Route 843 at Uniontown and U.S. Route 219 in Cherry Tree

Limited Reconstruction	1.6 miles	$ 68,500

PA. ROUTE 480
Between Pa. Route 80 in Clymer and U.S. Route 119 in Marion Center

Limited Reconstruction	3.9 miles	$ 98,900

LEG. ROUTE 32089
Between Pa. Route 480 in Marion Center and Pa. Route 236 in Grant Township

New Lane Construction	.3 mile	$ 43,000
Limited Reconstruction	4.8 miles	168,000

LEG. ROUTES 32084 and 32077
Between Pa. Route 80 at Hillsdale and Pa. Route 236 at Richmond

Limited Reconstruction	2.0 miles	$ 45,000

PA. ROUTE 236
Between Leg. Route 32089 (and also Leg. Route 32077) at Richmond and Jefferson County Line

Limited Reconstruction	7.4 miles	$	215,000

LEG. ROUTE 32112
Between U.S. Route 119 at Covode and Pa. Route 236

Limited Reconstruction	3.2 miles	$	83,000

PA. ROUTE 336
Between Jefferson County Line and Pa. Route 80 in Glen Campbell

Limited Reconstruction	1.5 miles	$	37,400
Limited Reconstruction	2.0 miles		58,000

JEFFERSON COUNTY

PA. ROUTE 336
Between Indiana County Line and Pa. Route 236

Limited Reconstruction	.2 mile	$	9,100

PA. ROUTE 236
Between Indiana County Line and Pa. Route 36 east of Punxsutawney

Limited Reconstruction	2.3 miles	$	84,700

PA. ROUTE 436
Between U.S. Route 119 south of Punxsutawney and Pa. Route 36 in Punxsutawney

New Construction	.5 mile	$	63,000
Limited Reconstruction	.9 mile		23,000

PA. ROUTE 952
Between Pa. Route 410 near Clearfield County Line and Pa. Route 236 in Calmont Township

Limited Reconstruction	1.1 miles	$	14,300
Limited Reconstruction	1.6 miles		22,600
New Construction	2.3 miles		107,000
Limited Reconstruction	2.7 miles		44,700

PA. ROUTE 951
Between Clearfield County Line and U.S. Route 119 in Sykesville

Limited Reconstruction	.7 mile	$	12,300

PA. ROUTE 951
Between U.S. Route 119 in Sykesville and U.S. Route 322 east of Reynoldsville

Limited Reconstruction	3.5 miles	$	143,300

PA. ROUTES 310 and 238
Between U.S. Route 119 in Punxsutawney and the separation of Pa. Routes 236 and 310 at Anita

New Construction	.5 mile	$	121,000
Limited Reconstruction	5.3 miles		163,000

PA. ROUTE 236
Between the separation of Pa. Routes 310 and 236 at Anita and U.S. Route 322 east of Brookville

Limited Reconstruction	4.2 miles	$	180,000

PA. ROUTE 536
Between Armstrong County Line and Pa. Route 36 northwest of Punxsutawney

Limited Reconstruction	10.1 miles	$	213,000

LEG. ROUTE 33016
Between Pa. Route 36 in Perry Township and Leg. Route 33017 in Worthville

Limited Reconstruction	8.5 miles	$	160,000

LEG. ROUTES 33017 and 33077
Between Leg. Route 33016 in Worthville and Pa. Route 36 at Coolspring

Limited Reconstruction	3.2 miles	$	46,000

LEG. ROUTES 33010 and 33003
Between Pa. Route 36 in Beaver Township and Pa. Route 28 in Summerville

Limited Reconstruction	6.2 miles	$	188,500

PA. ROUTE 949
Between U.S. Route 322 in Corsica and Pa. Route 36 at Sigel

Limited Reconstruction	8.5 miles	$	124,600

PA. ROUTE 899
Between Pa. Route 36 in Barnett Township and Forest County Line

Limited Reconstruction	1.1 miles	$	18,300

PA. ROUTE 950
Between U.S. Route 322 in Reynoldsville and Pa. Route 830 in Falls Creek

Limited Reconstruction	6.7 miles	$	241,400

PA. ROUTE 830
Between Clearfield County Line at Falls Creek and Pa. Route 28 in Warsaw Township

Limited Reconstruction	.4 mile	$	18,200
New Construction	.5 mile		98,000
Limited Reconstruction	4.2 miles		101,500
New Construction	.2 mile		29,000

LEG. ROUTES 33003 and 33010
Between Pa. Route 536 in Ringgold Township and Pa. Route 36 in Beaver Township

Limited Reconstruction	6.8 miles	$	92,700

JUNIATA COUNTY

PA. ROUTE 75
Between Franklin County Line and U.S. Route 22 east of Port Royal

Limited Reconstruction	1.9 miles	$	26,400
New Construction	1.4 miles		52,000
New Construction	.8 mile		61,600

PA. ROUTE 335
Between U.S. Route 22 (and also Pa. Routes 35 and 435) in Mifflintown and Pa. Route 135 in Delaware Township

Limited Reconstruction	9.1 miles	$	69,800

PA. ROUTE 35
Between U.S. Route 22 (and also Pa. Routes 335 and 435) and Snyder County Line

Limited Reconstruction	.4 mile	$	44,000

PA. ROUTE 135
Between U.S. Route 22 (and also U.S. Route 322) in in Thompsontown and Pa. Route 35 in Fayette Township

New Construction	4.5 miles	$	357,400

PA. ROUTE 235
Between Pa. Route 35 in Fayette Township and Pa. Route 135 in Delaware Township

New Construction	2.8 miles	$	221,700

LACKAWANNA COUNTY

PA. ROUTE 502
Between U.S.Route 611 at Daleville Airport and Pa. Route 307

Limited Reconstruction	.9 mile	$	5,500

PA. ROUTE 590
Between Wayne County Line and U.S. Route 611 in Elmhurst

Limited Reconstruction	3.2 miles	$	41,800

LEG. ROUTE 35006
Between Wayne County Line and Pa. Route 348 at Mount Cobb

Limited Reconstruction	5.2 miles	$	113,000

LEG. ROUTES 35014 and 35013
Between Pa. Route 629 and Taylor

Limited Reconstruction	5.2 miles	$	103,600

PA. ROUTE 307
Between U.S. Route 6 west of Clarks Summit and U.S. Route 11 (and also U.S. Route 611) in Scranton at the intersection of Market Street and Keyser Avenue

Limited Reconstruction	3.3 miles	$	78,100
Limited Reconstruction	.5 mile		34,000

LEG. ROUTES A-5, A-308, and A-309
Between U.S. Route 11 in Clarks Summit and Pa. Route 707 in Dalton

Limited Reconstruction	2.4 miles	$	23,100

LEG. ROUTES 35023 and 35024
Between Wyoming County Line and Pa. Route 707 in Dalton

Limited Reconstruction	.5 mile	$	19,800

PA. ROUTE 707
Between U.S. Route 11 in Dalton and Pa. Route 407 at Waverly

Limited Reconstruction	.9 mile	$	22,000

PA. ROUTE 407
Between Susquehanna County Line and U.S. Route 6 (and also U.S. Route 11) in South Abington Township

Limited Reconstruction	5.5 miles	$	97,900
Limited Reconstruction	4.9 miles		70,400

LEG. ROUTES 35031 and 35034
Between Pa. Route 407 at Waverly and Pa. Route 247 west of Archbald

Limited Reconstruction	.7 mile	$	6,100
Limited Reconstruction	1.9 miles		65,000

PA. ROUTE 347
Between U.S. Route 6 in Blakely and Leg. Route 35031 in Scott Township

Limited Reconstruction	4.0 miles	$	145,200

PA. ROUTE 247
Between Pa. Route 147 at Montdale and U.S. Route 6 in Archbald

Limited Reconstruction	3.4 miles	$	5,500

PA. ROUTE 70
Between Susquehanna County Line and U.S. Route 6 (and also U.S. Route 106) in Carbondale at the intersection of Cannan and Belmont Streets

Limited Reconstruction	.8 mile	$	23,300
Limited Reconstruction	1.6 miles		22,000

LANCASTER COUNTY

PA. ROUTE 222
Between Pa. Route 72 in Fulton Township and Pa. Route 741 in West Lampeter Township

Limited Reconstruction	4.4 miles	$	115,500
New Construction	4.2 miles		850,300
Limited Reconstruction	2.2 miles		165,200
New Construction	5.1 miles		1,006,500

PA. ROUTE 372
Between Susquehanna River and Pa. Route 896 in Bart Township

New Construction	3.6 miles	$	361,200
Limited Reconstruction	.3 mile		10,700
New Construction	6.3 miles		636,800

LEG. ROUTE 36145 and T-441
Between Pa. Route 372 (and also Pa. Route 896) in Bart Township and Pa. Route 572 at Chester County Line

Limited Reconstruction	2.0 miles	$	25,000
New Construction	2.4 miles		222,200

PA. ROUTE 896
Between Chester County Line and U.S. Route 30 east of Lancaster city

Limited Reconstruction	4.1 miles	$	72,400
Limited Reconstruction	4.8 miles		89,900

PA. ROUTES 897 and 340
Between U.S. Route 30 in Gap and Pa. Route 772 east of Lancaster city

New Construction	13.5 miles	$	855,300

PA. ROUTE 897
Between Pa. Route 340 in Salisbury Township and Lebanon County Line

New Construction	.6 mile	$	88,000

New Construction	.9 mile		75,600

PA. ROUTE 741
Between Pa. Route 896 in Strasburg and U.S. Route 222 in West Lampeter Township

New Construction	3.3 miles	$	324,500

LEG. ROUTES 36034 and 36036
Between U.S. Route 222 (and also Pa. Route 741) and U.S. Route 30 in Lancaster city at the intersection of King and Duke Streets

Limited Reconstruction	2.7 miles	$	59,000
New Construction	1.3 miles		360,500

PA. ROUTE 324
Between U.S. Route 222 at Engleside and Leg. Route 36005 in Conestoga Township

Limited Reconstruction	7.4 miles	$	161,300
Limited Reconstruction	1.5 miles		5,600

LEG. ROUTES 36038 and 36008
Between Pa. Route 922 in Conestoga Township and Washington

Limited Reconstruction	2.2 miles	$	28,100

LEG. ROUTE 36008

Between Washington and Leg. Route 36006 in Millersville

New Construction	6.3 miles	$	534,600

LEG. ROUTE 36006
Between Leg. Route 36008 in Millersville and U.S. Route 30 west of Lancaster city

Limited Reconstruction	1.8 miles	$	7,700

PA. ROUTE 340
Between U.S. Route 30 in Lancaster city, at the intersection of Marietta Avenue and Dorwart Street, and Pa. Route 441 in Marietta

Limited Reconstruction	.3 mile	$	6,400
New Construction	.6 mile		101,100

LEG. ROUTES 36031 and A-390
Between U.S. Route 30 in East Lampeter Township and Pa. Route 772 in Upper Leacock Township

Limited Reconstruction	4.1 miles	$	53,200

LEG. ROUTES 36058, A-352, 36030, and A-151
Between Pa. Route 340 and U.S. Route 322 in Earl Township

Limited Reconstruction	4.7 miles	$	68,200
Limited Reconstruction	3.1 miles		13,200

LEG. ROUTES 36030 and 36013
Between U.S. Route 222 in Ephrata and Pa. Route 897 near Lebanon County Line

Limited Reconstruction	4.3 miles	$	72,100

LEG. ROUTES 36001 and 36046
Between Berks County Line and Leg. Route 36030 north of Ephrata

New Construction	3.4 miles	$	333,200

Limited Reconstruction	1.7 miles		27,400

LEG. ROUTES 36013, 36047, and 36046
Between U.S. Route 222 in East Cocalico Township and Leg. Route 36001 in Denver

Limited Reconstruction	1.2 miles	$	42,500

LEG. ROUTE 36011
Between Pa. Route 772 in Rothsville and Pa. Route 501 in Lititz

New Construction	2.4 miles	$	263,000

PA. ROUTE 501
Between U.S. Route 222 in Glenmore and Lebanon County Line

Limited Reconstruction	2.2 miles	$	119,700
New Lane Construction	2.6 miles		191,000
Limited Reconstruction	1.0 mile		51,700
New Construction	.4 mile		42,900
Limited Reconstruction	6.6 miles		96,200

LEG. ROUTE 36042
Between U.S. Route 222 east of Neffsville and Pa. Route 772 in Neffsville

Limited Reconstruction	1.5 miles	$	7,000

PA. ROUTE 722
Between Pa. Route 501 in Neffsville and U.S. Route 230 in East Hempfield Township

Limited Reconstruction	4.7 miles	$	71,400

LEG. ROUTE 36006
Between U.S. Route 230 northwest of Lancaster city and Pa. Route 722 in East Petersburg

Limited Reconstruction	2.4 miles	$	40,000

PA. ROUTE 672
Between Pa. Route 722 east of East Petersburg and Pa. Route 72 in Manheim

Limited Reconstruction	2.7 miles	$	46,900

LEG. ROUTE 36045
Between Pa. Route 501 (and also Pa. Route 772) and Leg. Route 36001 at Pennville

Limited Reconstruction	2.9 miles	$	36,700

LEG. ROUTES 36045, A-5823, and 36002
Between Pa. Route 50 in Lititz and Pa. Route 72 in Manheim

Limited Reconstruction	1.9 miles	$	7,500

LEG. ROUTE 36066
Between Lebanon County Line and Leg. Route 36002 east of Manheim

Limited Reconstruction	3.7 miles	$	68,100

LEG. ROUTE 36001
Between Pa. Route 441 at Susquehanna River and Pa. Route 241 in Elizabethtown

New Construction	5.5 miles	$	377,500

PA. ROUTE 241
Between Pa. Route 441 and Pa. Route 30 in Elizabethtown

Limited Reconstruction	.6 mile	$	14,600

PA. ROUTE 572
Between Chester County Line and Pa. Route 372 in Christiana

Limited Reconstruction	.2 mile	$	5,900

LAWRENCE COUNTY

PA. ROUTE 351
Between Beaver County Line and Pa. Route 551 north of Enon Valley

Limited Reconstruction	3.0 miles	$	146,500

PA. ROUTES 551 and 108
Between Pa. Route 351 north of Enon Valley and Pa. Route 317 at Mt. Jackson

Limited Reconstruction	3.7 miles	$	168,000

PA. ROUTE 317
Between Ohio State Line and Pa. Route 108 at Mt. Jackson

Limited Reconstruction	.6 mile	$	17,500
Limited Reconstruction	.8 mile		22,000

PA. ROUTE 551
Between Pa. Route 317 at Mt. Jackson and U.S. Route 224 at Edinburg

Limited Reconstruction	.3 mile	$	11,000

PA. ROUTE 551
Between U.S. Route 224 at Edinburg and Pa. Route 278 in Pulaski Township

Limited Reconstruction	2.3 miles	$	14,500
New Construction	4.0 miles		188,000

PA. ROUTE 278
Between Pa. Route 551 in Pulaski Township and Pa. Route 168 in Volant

Limited Reconstruction	4.0 miles	$	76,000
Limited Reconstruction	4.5 miles		76,000

PA. ROUTE 956
Between Pa. Route 158 (and also Pa. Route 278) in New Wilmington and U.S. Route 19 (and also Pa. Route 108) in Scott Township

Limited Reconstruction	.7 mile	$	17,500

PA. ROUTE 168
Between Pa. Route 18 south of West Pittsburgh, along east shore of Shenango River, and Pa. Route 18 in New Castle at the intersection of Jefferson and Washington Streets

New Construction	1.3 miles	$	273,000
Limited Reconstruction	3.3 miles		70,000

PA. ROUTE 168
Between Pa. Route 108 in New Castle, at the intersection of Eastbrook Road and Croton Avenue, and Mercer County Line

Limited Reconstruction	8.9 miles	$	194,000

PA. ROUTE 108
Between Pa. Route 88 in New Castle, at the intersection of Washington Street and Croton Avenue, and Butler County Line

Limited Reconstruction	10.5 miles	$	472,000

LEBANON COUNTY

PA. ROUTE 897
Between Lancaster County Line and Pa. Route 501 in Schaefferstown

Limited Reconstruction	2.4 miles	$	18,700

PA. ROUTE 501
Between Lancaster County Line, through Schaefferstown and Myerstown, and Berks County Line

Limited Reconstruction	.5 mile	$	5,500
Limited Reconstruction	.4 mile		16,500
Limited Reconstruction	2.4 miles		73,900

LEG. ROUTES 38012 and A-1119
Between Pa. Route 897 in Schaefferstown and Berks County Line east of Newmanstown

Limited Reconstruction	2.0 miles	$	76,000

LEG. ROUTES 38014, 38011, 38015, 38052, and 38008
Between Leg. Route A-1119 in Newmanstown and Pa. Route 501 in Myerstown

Limited Reconstruction	4.7 miles	$	77,000

LEG. ROUTE 38015
Between Leg. Route 38011 in Richland and U.S. Route 422 at Millardsville

Limited Reconstruction	1.4 miles	$	9,900

PA. ROUTE 241
Between U.S. Route 322 in West Cornwall Township and Pa. Route 72 in Lebanon city at the intersection of Quentin and Colebrook Roads

Limited Reconstruction	3.6 miles	$	39,600

LEG. ROUTES 38017, A-1367, A-3582, and 38002
Between Pa. Route 72 in Lebanon Independent, through Mount Zion, and U.S. Route 22 at Berks County Line

Limited Reconstruction	.1 mile	$	400
Limited Reconstruction	1.0 mile		6,600

PA. ROUTE 343
Between Pa. Route 72 in Lebanon Independent and U.S. Route 22 south of Fredricksburg

Limited Reconstruction	2.5 miles	$	25,300

PA. ROUTE 934
Between U.S. Route 422 in Annville and U.S. Route 322 in South Annville Township

Limited Reconstruction	3.5 miles	$	19,800

PA. ROUTE 241
Between Lancaster County Line and U.S. Route 322 in South Annville Township

Limited Reconstruction	4.5 miles	$	37,500

PA. ROUTE 117
Between Pa. Route 241 in South Londonderry Township and Pa. Route 422 in Palmyra

New Construction	6.0 miles	$	590,000

PA. ROUTE 341 and LEG. ROUTE 38001
Between Dauphin County Line and Pa. Route 241 at Lawn

Limited Reconstruction	2.5 miles	$	19,800

LEHIGH COUNTY

LEG. ROUTES 39006, 39003, 39002, 39012, 39114, and 39107
Between Pa. Route 29 at Old Zionsville and U.S. Route 309 at Summit Lawn

Limited Reconstruction	1.1 miles	$	76,700

PA. ROUTE 43
Between Northampton County Line in Fountain Hill and U.S. Route 309 in Allentown

New Lane Construction	1.9 miles	$	178,400

LEG. ROUTES 39040 and 39013
Between Pa. Route 43 at Gauff's Hill and Pa. Route 29 in Emmaus

New Construction	1.6 miles	$	284,000
Limited Reconstruction	3.6 miles		144,100

PA. ROUTE 229
Between Pa. Route 29 in Emmaus and Pa. Route 329 in North Whitehall Township

New Construction	3.9 miles	$	665,500
New Construction	1.9 miles		348,000
New Construction	1.9 miles		283,000
Limited Reconstruction	.7 miles		18,700

PA. ROUTE 987
Between Northampton County Line at Allentown-Bethlehem Airport and U.S. Route 22 in Allentown at Union Boulevard

New Lane Construction	2.4 miles	$	291,900

U.S. ROUTE 22
Between Northampton County Line at Bethlehem and U.S. Route 309 in Allentown at the intersection of Nineteenth and Tilghman Streets

Limited Reconstruction	5.2 miles	$	410,000

PA. ROUTE 329
Between U.S. Route 309 By-Pass at Woodlawn and Northampton County Line at Cementon

Limited Reconstruction	.4 mile	$	10,200
Limited Reconstruction	1.0 mile		85,300

LEG. ROUTE 175
Between Pa. Route 329 in Cementon and Pa. Route 145 north of Cementon

Limited Reconstruction	1.0 mile	$	34,100

LEG ROUTES 39038, 39099, and 39053
Between Pa. Route 329 at Ballietsville and U.S. Route 309 south of Slatington

New Construction	3.1 miles	$	532,500

LEG. ROUTES 39052 and 39057
Between Pa. Route 29 in Heidelberg Township and U.S. Route 309 at Unionville

Limited Reconstruction	2.0 miles	$	69,400

LEG. ROUTE 39066
Between U.S. Route 222 in Macungie Township and U.S. Route 22 in Weisenberg Township

Limited Reconstruction	3.3 miles	$	113,300

PA. ROUTE 143
Between Berks County Line, through New Tripoli, and Pa. Route 29

Limited Reconstruction	7.1 miles	$	172,700

LEG. ROUTE 39062 SPUR E
Between Pa. Route 100 and Pa. Route 29 east of Pleasant Corners

New Construction	.6 mile	$	53,500

LUZERNE COUNTY

PA. ROUTE 940
Between U.S. Route 309 in Hazleton and Carbon County Line at White Haven

Limited Reconstruction	6.8 miles	$	157,000
New Construction	1.5 miles		220,000

LEG. ROUTE 653
Between Pa. Route 29 in Conyngham and Pa. Route 940 in Freeland

Limited Reconstruction	4.1 miles	$	183,000
New Construction	3.9 miles		605,000

LEG. ROUTE 40012
Between Pa. Route 29, passing Hazleton Airport, and U.S. Route 309

Limited Reconstruction	7.0 miles	$	368,000

PA. ROUTE 29
Between Pa. Route 93 in Nescopeck, along Susquehanna River, and Leg. Route 40030 in Mocanaqua

Limited Reconstruction	9.4 miles	$	550,000

LEG. ROUTE 40030
Between Pa. Route 29 in Mocanaqua and Leg. Route 40031 in Glen Lyon

New Construction	3.2 miles	$	605,000
New Lane Construction	4.2 miles		1,100,000

LEG. ROUTE 40040
Between Pa. Route 940 in White Haven and U.S. Route 309 in Mountain Top

New Construction	1.2 miles	$	110,000

OLD U.S. ROUTE 309
Between new U.S. Route 309 in Ashley and Leg. Route 40039 in Wilkes-Barre at south end of South Street Bridge

New Construction	.9 mile	$	220,000

LEG. ROUTES 40096 and 40058

Between U.S. Route 11 in Plymouth and Pa. Route 115 at Huntsville

New Construction	.1 mile	$	55,000
Limited Reconstruction	4.6 miles		242,000

PA. ROUTE 115

Between Leg. Route 40058 in Huntsville and Leg. Route 40066 in Lehman Township

Limited Reconstruction	3.7 miles	$	170,000

LEG. ROUTES 5 SPUR and 5

Between U.S. Route 309 in Wilkes-Barre, at the intersection of Northampton and Main Streets, and U.S. Route 11 in Pittston

New Lane Construction	.3 mile	$	110,000
Limited Reconstruction	1.0 mile		121,000
New Lane Construction	2.3 miles		264,000

U.S. ROUTE 11

Between Leg. Route 5 in Pittston and Lackawanna County Line

Limited Reconstruction	1.1 miles	$	97,000

LEG. ROUTES 40026, 40022, and 40120

Between Pa. Route 29 in Conyngham Township and Leg. Route 40034 west of Nuangola

Limited Reconstruction	.7 mile	$	33,000

LYCOMING COUNTY

PA. ROUTE 539

Between Columbia County Line and Pa. Route 42 in Franklin Township

Limited Reconstruction	3.8 miles	$	172,000

PA. ROUTE 864

Between U.S. Route 220 in Picture Rocks and Pa. Route 87 in Fairfield Township

Limited Reconstruction	7.5 miles	$	503,000
Limited Reconstruction	3.7 miles		160,000

PA. ROUTE 973

Between U.S. Route 15 (and also Pa. Route 14) and Pa. Route 87 at Loyalsock

Limited Reconstruction	3.0 miles	$	7,200
Limited Reconstruction	.1 mile		3,000
New Construction	2.0 miles		129,000

LEG. ROUTES A-12 and 41044

Between U.S. Route 220 (and also Pa. Route 14) in Montoursville and Pa.Route 973 at Warrensville

Limited Reconstruction	5.7 miles	$	164,000

LEG. ROUTE 41045

Between U.S. Route 15 (and also U.S. Route 220 and Pa. Route 14) in Williamsport, at the intersection of Washington Boulevard and Market Street, and Pa. Route 973 in Hepburn Township

New Construction	.3 mile	$	28,600
Limited Reconstruction	.8 mile		37,400

LEG. ROUTE A-1381

Between Pa. Route 405 in Montgomery and U.S. Route 15 northwest of Montgomery

Limited Reconstruction	1.6 miles	$	42,000

PA. ROUTE 44

Between Pa. Route 880 and Union County Line

Limited Reconstruction	.9 mile	$	51,000
Limited Reconstruction	1.2 miles		44,000
New Construction	2.4 miles		151,000

PA. ROUTE 880

Between Clinton County Line and Pa. Route 44 in Limestone Township

Limited Reconstruction	2.2 miles	$	94,000

PA. ROUTE 973

Between Pa. Route 44, through Salladasburg, and U.S. Route 15 (and also Pa. Route 14) at Hepburnville

Limited Reconstruction	2.2 miles	$	37,700
Limited Reconstruction	8.7 miles		354,100
Limited Reconstruction	.4 mile		14,300

PA. ROUTE 184

Between Pa. Route 84 and U.S. Route 15 in House Township

Limited Reconstruction	1.9 miles	$	80,000

MCKEAN COUNTY

PA. ROUTE 155

Between Potter County Line and U.S. Route 6 in Port Allegany

Limited Reconstruction	8.1 miles	$	193,000

PA. ROUTE 44

Between Potter County Line and New York State Line

Limited Reconstruction	4.0 miles	$	114,000

PA. ROUTE 146

Between U.S. Route 6 and Leg. Route 42013 at Clermont

Limited Reconstruction	4.3 miles	$	27,500

U.S. ROUTE 68

Between U.S. Route 6 in Kane and Warren County Line

Limited Reconstruction	14.7 miles	$	154,000

PA. ROUTE 346

Between U.S. Route 219 (and also Pa. Route 46) in Foster Brook and Pa. Route 446 in Eldred

Limited Reconstruction	14.5 miles	$	332,000

PA. ROUTE 246

Between Pa. Route 746 and Pa. Route 346 in Otto Township

Limited Reconstruction	5.7 miles	$	369,000

PA. ROUTE 646

Between Pa. Route 346 at Gilmore and New York State Line

Limited Reconstruction	3.3 miles	$	220,000

MERCER COUNTY

PA. ROUTE 208
Between Venango County Line and Pa. Route 78 in Grove City

New Construction	4.6 miles	$ 329,000

PA. ROUTE 965
Between Venango County Line and Pa. Route 78 in Worth Township

New Construction	4.1 miles	$ 218,000

PA. ROUTE 78
Between Pa. Route 58 in Grove City and Crawford County Line

Limited Reconstruction	7.2 miles	$ 179,000

PA. ROUTE 168
Between Lawrence County Line and Pa. Route 258

New Construction	1.7 miles	$ 111,000

PA. ROUTE 258
Between Butler County Line and Pa. Route 58 in Mercer borough

New Construction	.7 mile	$ 33,000

PA. ROUTE 258
Between Pa. Route 58 in Mercer borough and Pa. Route 18 in Clarksville

New Construction	7.9 miles	$ 430,000

PA. ROUTE 318
Between Ohio State Line and Pa. Route 468 southwest of Mercer borough

Limited Reconstruction	2.8 miles	$ 66,000
Limited Reconstruction	7.1 miles	170,000
New Construction	2.3 miles	126,000

PA. ROUTE 468
Between Pa. Route 318 and Pa. Route 158 in Mercer borough

New Construction	1.9 miles	$ 136,000
Limited Reconstruction	.6 mile	12,000

PA. ROUTE 718
Between Pa. Route 318 south of Wheatland and U.S. Route 62 in Sharon at the intersection of State and South Dock Streets

Limited Reconstruction	1.3 miles	$ 30,000
Limited Reconstruction	.4 mile	18,000

PA. ROUTE 718
Between U.S. Route 62 in Sharon, at the intersection of West State and North Water Streets, and Ohio State Line

Limited Reconstruction	5.4 miles	$ 166,000

LEG. ROUTE A-6532
In Wheatland, between Pa. Route 718 and Pa. Route 418

Limited Reconstruction	.4 mile	$ 11,000

PA. ROUTE 418
Between Pa. Route 718 in Wheatland and Pa. Route 18 south of Hillcrest Memorial Park

Limited Reconstruction	.2 mile	$ 9,500
Limited Reconstruction	1.5 miles	48,000

LEG. ROUTE 43111
Between Pa. Route 18 and Pa. Route 718 in Wheatland

New Construction	2.1 miles	$ 228,000

PA. ROUTE 518
Between U.S. Route 62 in Sharon, at the intersection of of State and Walnut Streets, and Pa. Route 18 at LaMonts Corners

New Construction	.6 mile	$ 188,000
Limited Reconstruction	.2 mile	47,000
Limited Reconstruction	1.5 miles	45,000

LEG. ROUTES 43014 and 43042
Between Pa. Route 58 in Delaware Township, through Fredonia, and U.S. Route 19 in Fairview Township

Limited Reconstruction	2.7 miles	$ 59,000
Limited Reconstruction	1.4 miles	44,000

PA. ROUTE 845
Between Leg. Route 43056 at Stoneboro Borough Line and U.S. Route 62 east of Stoneboro

New Construction	.5 mile	$ 48,000

LEG. ROUTES 43044 and 43045
Between Pa. Route 358 and Leg. Route 43042 in Fredonia

New Construction	5.2 miles	$ 151,000

PA. ROUTE 358
Between Pa. Route 58 in Greenville and U.S. Route 62 in Sandy Lake

Limited Reconstruction	.4 mile	$ 17,500
New Construction	5.5 miles	670,000
Limited Reconstruction	11.3 miles	280,000

PA. ROUTE 208
Between Pa. Route 58 in Grove City and U.S. Route 19 in Springfield Township

New Construction	.3 mile	$ 34,000
Limited Reconstruction	1.6 miles	74,000
New Construction	1.6 miles	82,000
Limited Reconstruction	4.0 miles	112,000

MIFFLIN COUNTY

PA. ROUTE 103
Between U.S. Route 22 in McVeytown and U.S. Route 22 in Lewistown

Limited Reconstruction	8.5 miles	$ 69,800

LEG. ROUTES 44007 and 44002
Between U.S. Route 322 in Lewistown and U.S. Route 522 in Derry Township

Limited Reconstruction	4.8 miles	$ 78,300

LEG. ROUTE 44001

Between U.S. Route 322 in Burnham, through Highland Park, and Leg. Route 44013 north of Lewistown Junction

Limited Reconstruction	3.2 miles	$	11,800

LEG. ROUTES A-4262, 44002, and 44014

Between U.S. Route 322 in Burnham and U.S. Route 522 in Decatur Township

Limited Reconstruction	7.5 miles	$	42,200

PA. ROUTE 76

Between Huntingdon County Line and U.S. Route 322 in Reedsville

New Construction	3.7 miles	$	250,800
Limited Reconstruction	1.2 miles		8,100
Limited Reconstruction	.3 mile		2,200
Limited Reconstruction	1.1 miles		6,800
New Construction	.7 mile		50,900
Limited Reconstruction	.7 mile		3,600

PA. ROUTE 972

Between U.S. Route 322 in Reedsville and Leg. Route 44017 at Naginey

New Construction	1.1 miles	$	54,200

LEG. ROUTES 29 SPUR, A-1088, and A-2763

Between U.S. Route 322 in Milroy and Pa. Route 972 at Naginey

Limited Reconstruction	.8 mile	$	3,900
Limited Reconstruction	1.5 miles		17,100

MONROE COUNTY

PA. ROUTE 612

Between Pa. Route 115 at Saylorsburg and U.S. Route 611 in Delaware Water Gap

New Construction	7.4 miles	$	392,000
New Construction	.8 mile		110,000
New Construction	.3 mile		45,100
Limited Reconstruction	.8 mile		23,200
New Construction	1.3 miles		149,400

LEG. ROUTE 45010

Between Pa. Route 612 west of Stroudsburg and U.S. Route 611 in Delaware Water Gap

Limited Reconstruction	4.7 miles	$	115,100
New Construction	1.1 miles		65,700

LEG. ROUTES 45061 and 45012

Between Pa. Route 612 northeast of Delaware Water Gap, along Delaware River, and U.S. Route 209 near Pike County Line

Limited Reconstruction	5.4 miles	$	141,000

PA. ROUTE 402

Between Leg. Route 45061 at Minisink Hills and U.S. Route 209 at Marshall's Creek

New Construction	.6 mile	$	145,500

PA. ROUTE 90

Between U.S. Route 209 in Stroudsburg and Pike County Line

Limited Reconstruction	8.9 miles	$	276,000
New Construction	3.3 miles		168,200

PA. ROUTE 290

Between Pa. Route 90 in Stroud Township and Pa. Route 390 at Canadensis

New Construction	4.9 miles	$	424,800

PA. ROUTE 390

Between Pa. Route 290 at Canadensis and Pike County Line

Limited Reconstruction	4.3 miles	$	145,900

PA. ROUTE 490

Between Wayne County Line and U.S. Route 611 at Tobyhanna

Limited Reconstruction	3.9 miles	$	130,800

LEG. ROUTE 45042

Between Leg. Route 45041 in Chestnut Township and Jackson Township Line

Limited Reconstruction	.3 miles	$	1,400

LEG. ROUTES 45023 and 45026

Between U.S. Route 611 at Tannersville and Pa. Route 90 in Paradise Township

Limited Reconstruction	5.4 miles	$	266,500

MONTGOMERY COUNTY

PA. ROUTE 23

Between Chester County Line and Pa. Route 320 in Lower Merion Township

New Construction	1.3 miles	$	289,000

PA. ROUTE 320

Between Delaware County Line and Pa. Route 23 in Lower Merion Township

New Construction	.4 mile	$	83,000

LEG. ROUTE 46140, FAYETTE STREET in CONSHOHOCKEN, COUNTY ROAD, and MOUNT PLEASANT AVENUE in AMBLER

Between Valley Forge Expressway in Lower Merion Township, through Conshohocken, and U.S. Route 309 in Ambler

New Construction	1.4 miles	$	490,000
New Construction	.7 mile		181,000
Limited Reconstruction	1.0 mile		68,000

PA. ROUTE 73

Between Pa. Route 29 in Schwenksville and Philadalphia Line

New Construction	1.6 miles	$	415,000
New Construction	1.3 miles		352,000
Limited Reconstruction	5.2 miles		203,200

PA. ROUTE 63
Between Philadelphia Line and Pa. Route 29 in Green Lane

New Construction	4.1 miles	$ 1,014,000
Limited Reconstruction	9.8 miles	726,000
Limited Reconstruction	9.2 miles	440,000
New Construction	1.5 miles	302,000

LEG. ROUTE 46012
Between Berks County Line and Pa. Route 29 in Green Lane

Limited Reconstruction	6.9 miles	$ 309,000

PA. ROUTE 363
Between Chester County Line and Pa. Route 63 in Lansdale

New Construction	.7 mile	$ 172,000
New Construction	4.6 miles	925,000

LEG. ROUTE 46062
Between Pa. Route 29 at Mont Clare and U.S. Route 422 in Jeffersonville

Limited Reconstruction	3.0 miles	$ 348,000
New Construction	1.2 miles	230,000

LEG. ROUTE 46068
Between Pa. Route 73 in Worcester Township and Pa. Route 63 at Kulpsville

Limited Reconstruction	2.8 miles	$ 181,000

PA. ROUTE 29
Between Chester County Line and U.S. Route 422 at Collegeville

New Construction	4.8 miles	$ 1,026,000

PA. ROUTE 113
In Skippack Township, between Pa. Route 29 and Pa. Route 73

Limited Reconstruction	3.2 miles	$ 188,000

LEG. ROUTE 46018
Between U.S. Route 422 in Limerick Township and Pa. Route 63 at Bergey

Limited Reconstruction	7.9 miles	$ 376,000
New Construction	1.0 mile	95,000

LEG. ROUTE 46038
Between Pa. Route 63 at Bergey and Leg. Route 46043 at Earlington

New Construction	1.8 miles	$ 176,000

LEG. ROUTE 46043
Between Pa. Route 63 in Towamencin Township and Pa. Route 113 at Franconia

Limited Reconstruction	4.0 miles	$ 100,000

PA. ROUTE 663
Between U.S. Route 422 in Pottstown, at the intersection of High and Charlotte Streets, and Bucks County Line

Limited Reconstruction	1.7 miles	$ 107,000
New Lane Construction	5.1 miles	867,000
Limited Reconstruction	4.8 miles	404,000
New Construction	.7 mile	115,000
Limited Reconstruction	1.5 miles	28,000

PA. ROUTE 252
Between Chester County Line and U.S. Route 202 (and also Pa. Route 23) east of King of Prussia

New Construction	1.4 miles	$ 366,000

PA. ROUTE 232
Between Bucks County Line and Pa. Route 63 at Bethaynes

New Lane Construction	4.9 miles	$ 1,132,000

PA. ROUTE 73
Between Berks County Line and Pa. Route 29 west of Schwenksville

Limited Reconstruction	3.7 miles	$ 375,000
New Construction	4.1 miles	798,000

MONTOUR COUNTY

PA. ROUTE 54 and LEG. ROUTES 47005 and 47006
Between U.S. Route 11 in Danville, along Susquehanna River, and U.S. Route 11 at Mechanicsville

Limited Reconstruction	2.9 miles	$ 136,000

PA. ROUTE 45
Between Northumberland County Line and Pa. Route 154 at Mooresburg

New Construction	4.6 miles	$ 297,000

PA. ROUTES 154 and 45
Between Northumberland County Line and Pa. Route 54 at Mausdale

Limited Reconstruction	7.8 miles	$ 341,000

NORTHAMPTON COUNTY

PA. ROUTE 412
Between Bucks County Line and Pa. Route 43 in Bethlehem

Limited Reconstruction	3.6 miles	$ 187,000

PA. ROUTE 43
Between Lehigh County Line and Pa. Route 412 in Bethlehem

Limited Reconstruction	.3 mile	$ 16,500

LEG. ROUTES 48010 and 48013
Between Pa. Route 412 in Bethlehem and Pa. Route 45 in Wilson

Limited Reconstruction	.5 mile	$ 13,800
Limited Reconstruction	1.2 miles	42,400
New Construction	.9 mile	120,000

LEG. ROUTE 48006
Between Pa. Route 412 in Hellertown and U.S. Route 611 at Raubsville

Limited Reconstruction	9.9 miles	$ 294,000

U.S. ROUTE 611
Between Bucks County Line and Pa. Route 90 (and also Pa. Route 115) in Easton

Limited Reconstruction	6.6 miles	$ 231,700
New Construction	1.0 mile	260,000
New Construction	.2 mile	44,000

U.S. ROUTE 22
Between Lehigh County Line and U.S. Route 22 Alt. in Bethlehem

New Construction	.2 mile	$ 56,700

U.S. ROUTE 22 ALT.
Between U.S. Route 22 in Bethlehem and U.S. Route 22 in Easton

New Construction	.8 mile	$ 169,500
Limited Reconstruction	1.4 miles	117,300

PA. ROUTE 12
Between U.S. Route 22 in Bethlehem and Leg. Route 48025 in Nazareth

New Construction	7.4 miles	$ 1,855,300
Limited Reconstruction	.2 mile	13,200

LEG. ROUTE 48025
Between Pa. Route 12 in Nazareth and U.S. Route 611 in Martin's Creek

Limited Reconstruction	2.2 miles	$ 104,000
Limited Reconstruction	.5 mile	16,500

LEG. ROUTE 48028
Between Pa. Route 709 in Lower Mount Bethel Township and U.S. Route 611 at Richmond

Limited Reconstruction	4.5 miles	$ 146,200

PA. ROUTE 712
Between U.S. Route 611 in Martin's Creek and Pa. Route 90 in Bangor

New Construction	5.8 miles	$ 993,500

PA. ROUTE 712

Between Pa. Route 115 in Wind Gap and Pa. Route 712 in Bangor

Limited Reconstruction	6.9 miles	$ 247,500
New Construction	.3 mile	37,400

LEG. ROUTE 48063
Between Pa. Route 512 in Bath and Pa. Route 12 in Lower Nazareth Township

Limited Reconstruction	.7 mile	$ 52,700

LEG. ROUTES 48060, 48061, and 48058
Between Pa. Route 329 in Northampton borough and Pa. Route 145 at Treichlers

New Construction	5.8 miles	$ 595,000

LEG. ROUTE 48056
Between Pa. Route 45 north of Walnutport and Pa. Route 946 at Danielsville

Limited Reconstruction	2.7 miles	$ 61,600

LEG. ROUTE 48024
Between Pa. Route 90 (and also Pa. Route 115) in Palmer Township and Leg. Route 48025 east of Stockertown

Limited Reconstruction	1.8 miles	$ 114,500

LEG. ROUTE 48049
Between U.S. Route 22 (and also Pa. Route 12) in Bethlehem and Pa. Route 987 in Hanover Township

New Construction	.4 mile	$ 69,000

NORTHUMBERLAND COUNTY

LEG. ROUTE 49010
Between Pa. Route 225 and Pa. Route 125 at Schuylkill County Line

Limited Reconstruction	10.8 miles	$ 187,000

PA. ROUTE 225
Between Dauphin County Line and U.S. Route 122 north of Shamokin

Limited Reconstruction	5.9 miles	$ 170,000
Limited Reconstruction	7.3 miles	220,000

LEG. ROUTE 49012
Between Pa. Route 225 in Trevorton and Schuylkill County Line

Limited Reconstruction	10.2 miles	$ 126,500

PA. ROUTE 54
Between Columbia County Line and U.S. Route 122 in Mount Carmel

New Construction	.7 mile	$ 82,500

PA. ROUTE 890
Between Pa. Route 225 at Trevorton and Pa. Route 242 in Sunbury

New Construction	2.7 miles	$ 517,000
New Construction	.9 mile	198,000
Limited Reconstruction	.5 mile	17,000

PA. ROUTE 45
Between Pa. Route 14 and Montour County Line

Limited Reconstruction	1.4 miles	$ 187,000
New Construction	4.0 miles	715,000

PA. ROUTE 154
Between Pa. Route 14 in Milton and Montour County Line

New Construction	1.9 miles	$ 330,000
New Construction	1.3 miles	176,000

PA. ROUTE 405
Between Pa. Route 14, through Watsontown, and Pa. Route 44

New Lane Construction	2.5 miles	$ 319,000
New Construction	1.3 miles	185,000

PA. ROUTE 44
Between Pa. Route 405 in Watsontown and Pa. Route 54 in Turbotville

Limited Reconstruction	2.3 miles	$ 209,000
New Construction	2.8 miles	385,000

LEG. ROUTE 49063

Between Pa. Route 405 near Lycoming County Line and Pa. Route 14 in Delaware Township

Limited Reconstruction	2.7 miles	$	110,000

PA. ROUTE 125

Between Leg. Route 49010 at Schuylkill County Line and U.S. Route 122 in Shamokin

New Construction	1.3 miles	$	187,000

PERRY COUNTY

PA. ROUTE 274

Between Franklin County Line and Pa. Route 34 in New Bloomfield

Limited Reconstruction	17.9 miles	$	823,400
New Construction	.7 mile		108,300

PA. ROUTE 850

Between Pa. Route 274 and Pa. Route 34 in Carroll Township

New Construction	2.0 miles	$	233,700
Limited Reconstruction	.1 mile		3,300

PA. ROUTE 74

Between Cumberland County Line and Pa. Route 17

Limited Reconstruction	1.7 miles	$	194,200
Limited Reconstruction	3.0 miles		77,900
New Construction	.4 mile		29,900

PA. ROUTE 17

Between Pa. Route 274 at Blain and U.S. Route 11 (and also U.S. Route 15) at Liverpool

New Construction	.8 mile	$	69,300
New Construction	.6 mile		56,100
Limited Reconstruction	7.0 miles		194,700
New Construction	.3 mile		30,300
Limited Reconstruction	4.6 miles		221,400

LEG. ROUTE 50002

Between Pa. Route 849 and Pa. Route 34 at Newport

Limited Reconstruction	4.6 miles	$	126,300

PHILADELPHIA COUNTY

TINICUM AVENUE

Between 84th Street and Island Avenue

New Construction	.3 mile	$	77,000

84TH STREET

Between U.S. Route 11 at Delaware County Line and Tinicum Avenue

Limited Reconstruction	.9 mile	$	185,000

LANCASTER AVENUE

Between U.S. Route 30 at Montgomery County Line and Woodland Avenue

Limited Reconstruction	1.8 miles	$	277,500

TACONY STREET

Between Aramingo Street and Levick Street

New Construction	1.4 miles	$	790,000

WELSH ROAD

Between Roosevelt Boulevard and Bustleton Avenue

New Construction	.6 mile	$	135,000

PHILMONT ROAD

Between Pa. Route 63 at Montgomery County Line and Bustleton Avenue

New Construction	.7 mile	$	148,000

PIKE COUNTY

PA. ROUTE 390

Between Monroe County Line and Pa. Route 507

Limited Reconstruction	6.0 miles	$	33,000
Limited Reconstruction	1.0 mile		3,300

PA. ROUTE 507

Between Wayne County Line and U.S. Route 6

Limited Reconstruction	5.5 miles	$	107,800
Limited Reconstruction	3.6 miles		49,500

LEG. ROUTE 51019

Between Pa. Route 390 and U.S. Route 6 (and also Pa. Route 37)

New Construction	3.9 miles	$	165,000

PA. ROUTE 137

Between Pa. Route 37 and New York State Line

Limited Reconstruction	6.8 miles	$	27,500

LEG. ROUTE 51008

Between U.S. Route 6 and Pa. Route 137 south of New York State Line

Limited Reconstruction	3.7 miles	$	29,700
Limited Reconstruction	.3 mile		12,200

PA. ROUTE 590 RELOCATED

Between Wayne County Line and Leg. Route 51018

Limited Reconstruction	3.4 miles	$	123,200
Limited Reconstruction	.6 mile		11,000

POTTER COUNTY

PA. ROUTE 144

Between Clinton County Line and Pa. Route 44

New Construction	3.1 miles	$	244,300

PA. ROUTES 44 and 144

Between junction of Pa. Routes 44 and 144 at Oleona and their separation in Abbott Township

Limited Reconstruction	5.3 miles	$	261,000

PA. ROUTE 144

Between Pa. Route 44 and U.S. Route 6 in Galeton

Limited Reconstruction	10.1 miles	$	479,000

PA. ROUTE 607
Between Pa. Route 155 and Pa. Route 872

Limited Reconstruction	4.7 miles	$	192,000

PA. ROUTE 872
Between Pa. Route 607 and U.S. Route 6 in Coudersport

Limited Reconstruction	1.4 miles	$	62,700

PA. ROUTE 44
Between U.S. Route 6 in Coudersport and McKean County Line

Limited Reconstruction	2.8 miles	$	70,900
Limited Reconstruction	1.9 miles		91,000
Limited Reconstruction	2.8 miles		129,000
Limited Reconstruction	.5 mile		33,000

LEG. ROUTE 52013
Between Pa. Route 44 in Shinglehouse and New York State Line

Limited Reconstruction	3.5 miles	$	103,000

LEG. ROUTE 52014
Between Pa. Route 44 in Shinglehouse and New York State Line

Limited Reconstruction	3.6 miles	$	143,600

PA. ROUTE 49
Between Pa. Route 44 and Tioga County Line

Limited Reconstruction	3.5 miles	$	168,000
Limited Reconstruction	2.1 miles		83,500

SCHUYLKILL COUNTY

PA. ROUTE 895
Between Pa. Route 443 in Pine Grove and U.S. Route 122 in Deer Lake

Limited Reconstruction	3.8 miles	$	99,700
Limited Reconstruction	11.7 miles		353,300

PA. ROUTE 443
Between Pa. Route 125 in Pine Grove and Pa. Route 122 in Schuylkill Haven

Limited Reconstruction	7.3 miles	$	212,300

LEG. ROUTE 53004
Between Pa. Route 125 north of Pine Grove and Pa. Route 83

Limited Reconstruction	1.9 miles	$	91,600

LEG. ROUTE 53029
Between Pa. Route 125 and U.S. Route 209

Limited Reconstruction	4.4 miles	$	218,200

PA. ROUTE 125
Between U.S. Route 209 at Tremont and Northumberland County Line

Limited Reconstruction	2.0 miles	$	89,100
New Construction	1.5 miles		74,700
New Construction	1.9 miles		125,500
Limited Reconstruction	5.0 miles		192,100

LEG. ROUTES 53057 and 53056
Between Northumberland County Line and Pa. Route 901 in Minersville

New Construction	6.1 miles	$	388,100
Limited Reconstruction	2.7 miles		89,900
New Lane Construction	.2 mile		11,800
Limited Reconstruction	1.2 miles		53,900

LEG. ROUTE 53015
Between Leg. Route 53056 at Mount Pleasant and Leg. Route 53001 at Heckscherville

Limited Reconstruction	3.2 miles	$	62,600

LEG. ROUTE 53043
Between Pa. Route 901 (and also Leg. Route 53056) in Minersville and U.S. Route 122 in Pottsville

Limited Reconstruction	3.8 miles	$	139,800

LEG. ROUTE 53032
Between U.S. Route 122 in Pottsville and Pottsville City Limits

Limited Reconstruction	.5 mile	$	22,000

LEG. ROUTE 53083
Between Leg. Route 53057 in Lavelle and Columbia County Line

New Construction	1.6 miles	$	288,000

LEG. ROUTE 53084
Between Columbia County Line and U.S. Route 122 in Ashland

New Lane Construction	1.1 miles	$	71,000
New Construction	.5 mile		89,200

PA. ROUTE 45
Between U.S. Route 122 in Ashland and Leg. Route 53035 west of Mahanoy City

Limited Reconstruction	.7 mile	$	52,800
Limited Reconstruction	1.5 miles		46,200
Limited Reconstruction	1.2 miles		66,000
New Construction	.9 mile		175,000

PA. ROUTE 345
Between Pa. Route 45 west of Ashland and Pa. Route 45 east of Mahanoy City

New Construction	.7 mile	$	64,500

PA. ROUTE 44
Between Pa. Route 924 and Leg. Route 53046 in Nuremberg

Limited Reconstruction	5.5 miles	$	154,000

LEG. ROUTE 53041
Between Pa. Route 45 in Mahanoy City and Pa. Route 29

New Construction	.2 mile	$	17,600
Limited Reconstruction	7.8 miles		297,600

LEG. ROUTE 53012
Between Pa. Route 443 in Orwigsburg and Pa. Route 895

Limited Reconstruction	6.2 miles	$	242,600

PA. ROUTE 895
Between Pa. Route 443 in New Ringgold and Pa. Route 29

New Construction	.2 mile	$ 37,000
New Construction	.7 mile	114,000

PA. ROUTE 895
Between Pa. Route 29 and Carbon County Line

Limited Reconstruction	4.4 miles	$ 146,000

LEG. ROUTES 755, 53068, and 53067
Road through Ringtown

Limited Reconstruction	.2 mile	$ 4,700

SNYDER COUNTY

PA. ROUTE 35
Between Juniata County Line and U.S. Route 11 (and also U.S. Route 15)

Limited Reconstruction	7.8 miles	$ 206,000

LEG. ROUTES 54034 and 54023
Between Mifflin County Line and Pa. Route 929

New Construction	3.7 miles	$ 302,500
Limited Reconstruction	3.0 miles	12,000

PA. ROUTE 929
Between U.S. Route 522 and Pa. Route 104

Limited Reconstruction	3.9 miles	$ 146,200
Limited Reconstruction	6.0 miles	29,700

LEG. ROUTES 54035 and 54036
Between Pa. Route 104 north of Middleburg and Pa. Route 204 at Union County Line

Limited Reconstruction	7.3 miles	$ 67,000

PA. ROUTE 204
Between U.S. Route 11 (and also U.S. Route 15) in Selinsgrove and Union County Line

Limited Reconstruction	1.8 miles	$ 7,700

SOMERSET COUNTY

PA. ROUTE 160
Between Allegheny County Line and Pa. Route 56 in Windber

Limited Reconstruction	9.0 miles	$ 277,200
Limited Reconstruction	7.7 miles	264,300
Limited Reconstruction	5.5 miles	265,500
Limited Reconstruction	3.9 miles	140,100

LEG. ROUTE 55098
Between Pa. Route 160 and Pa. Route 56 in Paint

Limited Reconstruction	2.0 miles	$ 100,000

LEB. ROUTES 55002, 55006, 55013, A-6483, and A-281
Between Maryland State Line and U.S. Route 219 in Meyersdale

Limited Reconstruction	3.1 miles	$ 72,700
Limited Reconstruction	1.6 miles	69,700

LEG. ROUTES A-727 and 55022
Between U.S. Route 219 in Meyersdale and Pa. Route 653 in Rockwood

Limited Reconstruction	4.3 miles	$ 116,200

LEG. ROUTE 993
Between Maryland State Line and Leg. Route 55011 in Elk Township

Limited Reconstruction	1.0 mile	$ 62,200

LEG. ROUTES A-178, 979, 55012, 55017, and 55008
Between U.S. Route 219 in Salisbury and Leg. Route A-727 west of Meyersdale

Limited Reconstruction	1.8 miles	$ 56,900
Limited Reconstruction	3.8 miles	113,900

LEG. ROUTES 55010 and 55008
Between Leg. Route 993 in Elk Township and Pa. Route 53

Limited Reconstruction	1.7 miles	$ 35,400

LEG. ROUTE 55029
Between Leg. Route 55022 south of Rockwood and Pa. Route 53 in Upper Turkeyfoot Township

Limited Reconstruction	4.8 miles	$ 250,200

LEG. ROUTES 55097 and 55103
Between U.S. Route 219, through Conemaugh Township, and Pa. Route 53

Limited Reconstruction	5.2 miles	$ 204,300

PA. ROUTE 653
Between Leg. Route 55022 in Rockwood and Pa. Route 31

Limited Reconstruction	9.8 miles	$ 120,400

LEG. ROUTES A-280 and 55043
Between Pa. Route 653 at Rockwood western Borough Limits and Pa. Route 53 in Somerset borough

Limited Reconstruction	7.2 miles	$ 249,100

LEG. ROUTE 808
Between U.S. Route 219 in Berlin and U.S. Route 219 east of Somerset borough

New Construction	5.2 miles	$ 1,002,000

LEG. ROUTE 55066
Between Pa. Route 31 in Jefferson Township and U.S. Route 219 in Lincoln Township

Limited Reconstruction	8.8 miles	$ 257,000

PA. ROUTE 53
Between U.S. Route 219 in Somerset borough and U.S. Route 30 in Stoystown

Limited Reconstruction	5.5 miles	$ 407,700

PA. ROUTE 53
Between U.S. Route 30 east of Stoystown and Cambria County Line

New Construction	.9 mile	$ 200,100
Limited Reconstruction	5.1 miles	225,400
New Construction	1.6 miles	272,600
Limited Reconstruction	2.7 miles	150,600

Limited Reconstruction	4.3 miles		299,400

PA. ROUTE 601
Between U.S. Route 219 in Lincoln Township and Leg. Route 55098 in Paint

Limited Reconstruction	14.8 miles	$	765,000
New Construction	1.0 mile		167,300
Limited Reconstruction	6.2 miles		147,900

LEG. ROUTES 55092, 55025, 55146, 55102, and 55105
Between U.S. Route 30 west of Jennerstown and U.S. Route 219 in Conemaugh Township

New Construction	2.5 miles	$	140,000
Limited Reconstruction	2.3 miles		63,600

SULLIVAN COUNTY

PA. ROUTE 487
Between Pa. Route 564 and Pa. Route 87 in Dushore

New Construction	3.1 miles	$	270,000

PA. ROUTE 154
Between U.S. Route 220 in Laporte and Bradford County Line

Limited Reconstruction	1.1 miles	$	19,000
New Construction	5.9 miles		442,000
Limited Reconstruction	2.0 miles		47,200
New Construction	.1 mile		5,700

PA. ROUTE 42
Between U.S. Route 220 and Pa. Route 154

New Construction	.8 mile	$	113,100

T-434, T-436, and T-442; LEG. ROUTES 56021 and 56018
Between Pa. Route 87 at Millview and Bradford County Line

New Construction	4.8 miles	$	397,000
New Construction	.7 mile		60,500

SUSQUEHANNA COUNTY

PA. ROUTE 247
Between Lackawanna County Line and Pa. Route 70 in Forest City

Limited Reconstruction	.9 mile	$	9,200

PA. ROUTE 147
Between Lackawanna County Line and Pa. Route 247 at Dundoff

Limited Reconstruction	.7 mile	$	33,000

LEG. ROUTES 57036 and 57037
Between Lackawanna County Line and U.S. Route 106

Limited Reconstruction	4.8 miles	$	178,000

PA. ROUTE 92
Between Wyoming County Line and New York State Line

Limited Reconstruction	5.9 miles	$	273,900
Limited Reconstruction	8.8 miles		336,600
Limited Reconstruction	4.1 miles		165,000

PA. ROUTE 167
Between U.S. Route 11 in Hop Bottom and U.S. Route 106

Limited Reconstruction	5.6 miles	$	84,200

LEG. ROUTE 57010
Between U.S. Route 106 in Rush Township and Pa. Route 29 in Dimock Township

Limited Reconstruction	9.4 miles	$	221,300

LEG. ROUTES 57022, 57108, 57021, 944, and 57032
Between Pa. Route 29 in Dimock Township and U.S. Route 106 at Kingsley

Limited Reconstruction	5.0 miles	$	178,500

LEG. ROUTE 57001
Between Pa. Route 267 in Auburn Township and Pa. Route 29 in Bridgewater Township

Limited Reconstruction	4.5 miles	$	45,200

PA. ROUTE 858
Between U.S. Route 106 in Rush Township and New York State Line at Little Meadows

New Construction	6.7 miles	$	389,400
Limited Reconstruction	3.1 miles		70,600

LEG. ROUTE 08101
Between Bradford County Line and Pa. Route 858 in Little Meadows

Limited Reconstruction	.9 mile	$	58,300

PA. ROUTE 267
Between Pa. Route 471 in Forest Lake Township and New York State Line

Limited Reconstruction	1.4 miles	$	35,200

PA. ROUTE 167
Between U.S. Route 106 in Montrose and New York State Line

Limited Reconstruction	3.0 miles	$	25,300
Limited Reconstruction	4.4 miles		45,100

LEG. ROUTE 57029
Between U.S. Route 106 (and also Pa. Route 92) in Lenox Township and Pa. Route 371 in Milford Township

Limited Reconstruction	10.7 miles	$	374,000

PA. ROUTE 371
Between Leg. Route 57029 in Milford Township and U.S. Route 11 (and also Pa. Route 492) in New Milford

Limited Reconstruction	1.3 miles	$	58,300

PA. ROUTE 492
Between U.S. Route 11 (and also Pa. Route 371) in New Milford and Pa. Route 92 in Jackson Township

Limited Reconstruction	.9 mile	$	35,200
New Construction	.7 mile		72,600

LEG. ROUTE 57048
Between Pa. Route 92 (and also Pa. Route 492) and Pa. Route 570

Limited Reconstruction	.5 mile	$	28,600

PA. ROUTE 570
Between Leg. Route 57048 and Pa. Route 70 west of Thompson

Limited Reconstruction	3.0 miles	$ 99,000

PA. ROUTE 70
Between Pa. Route 570 west of Thompson and Leg. Route 57029 in Lanesboro

Limited Reconstruction	2.7 miles	$ 122,100
Limited Reconstruction	1.4 miles	39,600

LEG. ROUTE 57059
Between Pa. Route 70 in Lanesboro and New York State Line

Limited Reconstruction	2.7 miles	$ 97,900

PA. ROUTE 692
Between U.S. Route 11 in Great Bend and Pa. Route 92 in Oakland

Limited Reconstruction	1.3 miles	$ 63,800

TIOGA COUNTY

PA. ROUTE 414
Between U.S. Route 15 in Liberty and Pa. Route 84 in Morris Township

Limited Reconstruction	1.5 miles	$ 64,000

LEG. ROUTES 58056 and A-7412
Between Pa. Route 414 in Union Township and U.S. Route 15 in Blossburg

Limited Reconstruction	3.7 miles	$ 124,000

PA. ROUTE 362
Between U.S. Route 6 in Shippen Township and Pa. Route 660 in Delmar Township

Limited Reconstruction	.6 mile	$ 25,900
Limited Reconstruction	1.2 miles	59,200

PA. ROUTE 660
Between Pa. Route 362 in Delmar Township and Pa. Route 84 in Wellsboro

Limited Reconstruction	1.0 mile	$ 45,000

PA. ROUTE 549
Between U.S. Route 6 in Richmond Township and Bradford County Line

Limited Reconstruction	2.9 miles	$ 121,000

PA. ROUTE 84
Between U.S. Route 15 in Lawrence Township and Bradford County Line

Limited Reconstruction	.5 mile	$ 23,000
New Construction	1.6 miles	164,000

PA. ROUTE 84
Between U.S. Route 6 in Delmar Township and U.S. Route 15 in Tioga borough

Limited Reconstruction	.8 mile	$ 42,000

PA. ROUTE 249
Between Pa. Route 84 in Middlebury Township and Pa. Route 49 in Westfield Township

Limited Reconstruction	1.5 miles	$ 70,500
Limited Reconstruction	4.7 miles	181,000

PA. ROUTE 349
Between U.S. Route 6 in Gaines Township and Pa. Route 49 in Westfield

Limited Reconstruction	9.1 miles	$ 13,600

PA. ROUTE 49
Between Potter County Line and U.S. Route 15 in Lawrenceville

Limited Reconstruction	4.6 miles	$ 218,000
Limited Reconstruction	2.9 miles	71,000

LEG. ROUTE 58026
Between Pa. Route 249 in Middlebury Township and New York State Line

New Construction	.6 mile	$ 35,300
Limited Reconstruction	2.0 miles	90,400

LEG. ROUTES 58029 and 58046
Between Pa. Route 249 in Middlebury Township and Pa. Route 49 in Nelson Township

Limited Reconstruction	2.2 miles	$ 116,500

UNION COUNTY

PA. ROUTE 304
Between Pa. Route 45 in Mifflinburg and U.S. Route 15 in East Buffalo Township

Limited Reconstruction	7.1 miles	$ 40,000

LEG . ROUTE 59003; PA. ROUTE 235; and LEG. ROUTES 59032, 59002, 59005, 59006, 59010, and 59009
Between Pa.. Route 45 in Hartley Township and Pa. Route 45 in Lewis Township

Limited Reconstruction	.7 mile	$ 29,000
New Construction	.7 mile	20,000
Limited Reconstruction	2.5 miles	14,000
New Construction	1.9 miles	72,500

PA. ROUTE 95
Between Centre County Line and Pa. Route 45 in Lewisburg

Limited Reconstruction	18.1 miles	$ 544,000

PA. ROUTE 154
Between Pa. Route 95 in West Buffalo Township and U.S. Route 15 in West Milton

Limited Reconstruction	3.4 miles	$ 16,000
Limited Reconstruction	6.0 miles	65,000

PA. ROUTE 44
Between Lycoming County Line and U.S. Route 15 in Gregg Township

Limited Reconstruction	2.7 miles	$ 56,000

VENANGO COUNTY

PA. ROUTE 208
Between Mercer County Line and Pa. Route 38 in Scrubgrass Township

Limited Reconstruction	1.2 miles	$	42,000
Limited Reconstruction	.6 mile		18,000

PA. ROUTE 308
Between Butler County Line and Pa. Route 8 in Irwin Township

Limited Reconstruction	1.6 miles	$	40,000
New Construction	2.2 miles		170,000

PA. ROUTE 965
Between Mercer County Line and U.S. Route 62 south of Polk

Limited Reconstruction	4.6 miles	$	138,000

PA. ROUTE 257
Between Leg. Route 60011 in Rockland Township and U.S. Route 322 in Cranberry Township

Limited Reconstruction	5.7 miles	$	163,000

LEG. ROUTE 60023
Between U.S. Route 322 in Cranberry Township at Allegheny River and Pa. Route 257

New Construction	4.6 miles	$	313,000

LEG. ROUTE 60036
Between Crawford County Line and U.S. Route 322 in Canal Township

Limited Reconstruction	3.2 miles	$	101,000

PA. ROUTE 322
Between U.S. Route 322 in Sugar Creek Township and Crawford County Line

Limited Reconstruction	7.6 miles	$	211,000

PA. ROUTE 36
Between Forest County Line and Pa. Route 27 in Pleasantville

Limited Reconstruction	5.1 miles	$	144,000

WARREN COUNTY

LEG. ROUTE 61004
Between Pa. Route 27 and Leg. Route 61005 in Eldred Township

Limited Reconstruction	2.6 miles	$	38,500

PA. ROUTE 957
Between Leg. Route 61064 in Columbus Township and U.S. Route 62 in Grove Township

New Construction	.3 mile	$	14,000
Limited Reconstruction	4.7 miles		91,000

PA. ROUTE 69
Between U.S. Route 62 in North Warren and New York State Line

Limited Reconstruction	3.8 miles	$	132,000
Limited Reconstruction	1.2 miles		18,500

WASHINGTON COUNTY

PA. ROUTE 88
Between Elco and Pa. Route 71 in Speers

Limited Reconstruction	6.4 miles	$	216,700

PA. ROUTE 481
Between U.S. Route 40 in Centerville and Pa. Route 88 (and also Pa. Route 837) in Monongahela

Limited Reconstruction	.2 mile	$	6,700
Limited Reconstruction	2.6 miles		114,600
Limited Reconstruction	.5 mile		16,200
New Construction	3.8 miles		872,600
Limited Reconstruction	.5 mile		36,700

PA. ROUTE 71
Between Pa. Route 88 in Charleroi and Pa. Route 481 in Fallowfield Township

Limited Reconstruction	3.9 miles	$	239,700

PA. ROUTE 837
Between Pa. Route 88 in Carroll Township and Pa. Route 88 in Monongahela

Limited Reconstruction	1.9 miles	$	123,200
New Construction	2.0 miles		482,900

LEG. ROUTES 62053, 62078, and 62194
Between Greene County Line and U.S. Route 40 in Beallsville

Limited Reconstruction	7.3 miles	$	231,200

LEG. ROUTES 62074, 62177, A-515, and A-508
Between U.S. Route 40 in Beallsville and Pa. Route 71 in Bentleyville

Limited Reconstruction	2.4 miles	$	77,800
New Construction	1.1 miles		246,900

PA. ROUTE 71
In Bentleyville, between Leg. Route A-508 and Leg. Route 62052

Limited Reconstruction	.3 mile	$	11,400
New Construction	.5 mile		54,500

PA. ROUTE 31
Between Pa. Route 88 in Monongahela and U.S. Route 19 in Washington city at the intersection of College and Beau Streets

Limited Reconstruction	9.3 miles	$	345,600
Limited Reconstruction	2.1 miles		71,000
Limited Reconstruction	.2 mile		10,600

PA. ROUTE 837
Between Pa. Route 88 in New Eagle and Allegheny County Line

Limited Reconstruction	.3 mile	$	18,200

LEG. ROUTE 62081
Between Allegheny County Line and Pa. Route 88 in Finleyville Township

New Construction	1.1 miles	$	65,600

LEG. ROUTE 62174

Between Pa. Route 837 in Elrama and Pa. Route 88 in Finleyville Township

Limited Reconstruction	4.6 miles	$ 248,200

LEG. ROUTES 62034 and 62052

Between Pa. Route 88 in Finleyville Township and Leg. Route 62173 in North Strabane Township

New Construction	2.4 miles	$ 336,900
Limited Reconstruction	5.9 miles	155,600

LEG. ROUTE 62173

Between Leg. Route 62052 in North Strabane Township and U.S. Route 19 south of Canonsburg

Limited Reconstruction	7.4 miles	$ 472,600

LEG. ROUTE 62014

Between Pa. Route 519 in Cecil Township and Pa. Route 28

Limited Reconstruction	.5 mile	$ 13,800

LEG. ROUTE 62075

Between Pa. Route 31 in South Strabane Township and Leg. Route 62082 in Amwell Township

Limited Reconstruction	12.5 miles	$ 217,100

LEG. ROUTE 62082

Between U.S. Route 19 and Leg. Route 62075 in Amwell Township

Limited Reconstruction	3.1 miles	$ 68,700

PA. ROUTE 18

Between Greene County Line and U.S. Route 40 in Washington city at the intersection of Park Avenue and Main Street

New Construction	8.0 miles	$ 1,287,400

PA. ROUTE 231

Between Pa. Route 18 at Greene County Line and U.S. Route 40 in Claysville

Limited Reconstruction	1.8 miles	$ 30,100
Limited Reconstruction	3.2 miles	57,800

PA. ROUTE 231

Between U.S. Route 40 in Claysville and Pa. Route 28 in Avella

Limited Reconstruction	2.7 miles	$ 133,900
Limited Reconstruction	3.7 miles	162,300
Limited Reconstruction	1.6 miles	44,700

LEG. ROUTE 802

Between U.S. Route 19 in Washington city, at the intersection of Highland Avenue and Main Street, and Pa. Route 519 (and also Pa. Route 980) in Canonsburg at the intersection of Central Avenue and Pike Street

New Construction	.9 mile	$ 188,000
Limited Reconstruction	3.4 miles	189,800
New Construction	.6 mile	123,700
New Construction	.6 mile	123,500
Limited Reconstruction	.6 mile	27,100

LEG. ROUTES 114 SPUR, A-92, and 62189

Between U.S. Route 119 in Washington city, at the intersection of Highland Avenue and Main Street, and Leg. Route 802 in Meadow Lands

Limited Reconstruction	4.0 miles	$ 162,500

LEG. ROUTE 62090

Between U.S. Route 19 (and also Leg. Route 62173 and Pa. Route 519) and Leg. Route 802 in Canonsburg

Limited Reconstruction	.4 mile	$ 7,100
New Construction	1.1 miles	226,400

LEG. ROUTE 62164

Between U.S. Route 19 east of Canonsburg and Pa. Route 519 (and also Pa. Route 980) in Canonsburg

Limited Reconstruction	.7 mile	$ 5,600

PA. ROUTE 980

Between Pa. Route 519 in Canonsburg, at the intersection of East Pike Street and Ashland Avenue, and Allegheny County Line

Limited Reconstruction	9.3 miles	$ 453,800
Limited Reconstruction	2.3 miles	76,800

PA. ROUTE 979

Between Pa. Route 980 in Robinson Township and Allegheny County Line

New Construction	.8 mile	$ 31,600

PA. ROUTE 28

Between Allegheny County Line at Cecil and Pa. Route 231 in Avella

Limited Reconstruction	4.8 miles	$ 170,400
Limited Reconstruction	1.8 miles	72,900
Limited Reconstruction	1.3 miles	41,500

LEG. ROUTE 62188

Between Leg. Route 802 (and also Leg. Route 62090) in Canonsburg and Pa. Route 28

Limited Reconstruction	6.9 miles	$ 277,500

LEG. ROUTE 62206

Between Pa. Route 980 in MacDonald and Leg. Route 62029 in Mount Pleasant Township

Limited Reconstruction	1.5 miles	$ 142,300

LEG. ROUTE 62029

Between Pa. Route 28 in Mount Pleasant Township and Leg. Route 62180

Limited Reconstruction	4.4 miles	$ 110,900

LEG. ROUTE 62031

Between Pa. Route 28 in Mount Pleasant Township and Leg. Route 62180 east of Burgettstown

Limited Reconstruction	7.5 miles	$ 252,100

LEG. ROUTE 62185

Between Pa. Route 231 (and also Pa. Route 28) in Avella and Pa. Route 18 in Atlasburg

New Construction	2.5 miles	$ 302,600
Limited Reconstruction	4.8 miles	128,500

LEG. ROUTE 931
Between western entrance at Beaver County Line and eastern exit into Beaver County

New Construction	3.9 miles	$	142,400

WAYNE COUNTY

PA. ROUTE 490
Between Monroe County Line and Pa. Route 90 in Dreher Township

Limited Reconstruction	1.5 miles	$	55,000

PA. ROUTE 590
Between Lackawanna County Line and Pa. Route 348 in Salem Township

Limited Reconstruction	1.0 mile	$	25,300

PA. ROUTE 90
Between Pa. Route 590 in Salem Township and Pa. Route 91 in Honesdale

Limited Reconstruction	9.9 miles	$	5,500

PA. ROUTE 590
Between Pike County Line and U.S. Route 6 in Hawley

Limited Reconstruction	1.5 miles	$	77,000

PA. ROUTE 296
Between Pa. Route 90 in Lake Township and Pa. Route 247 in Clinton Township

Limited Reconstruction	16.3 miles	$	488,900

LEG. ROUTE 63017
Between Lackawanna County Line and Pa. Route 296 in South Canaan Township

Limited Reconstruction	3.3 miles	$	79,200

PA. ROUTE 91
Between Pa. Route 90 in Honesdale and Pa. Route 371 in Damascus Township

Limited Reconstruction	2.6 miles	$	99,000
Limited Reconstruction	5.5 miles		222,200

PA. ROUTE 670
Between Pa . Route 90 in Honesdale and Pa. Route 371 in Mount Pleasant Township

Limited Reconstruction	4.2 miles	$	184,800

PA. ROUTE 247
Between Pa. Route 296 in Clinton Township and Pa. Route 170 in Mount Pleasant Township

Limited Reconstruction	1.6 miles	$	70,400

PA. ROUTE 170
Between Pa. Route 247 in Mount Pleasant Township and Pa. Route 670

Limited Reconstruction	1.0 mile	$	41,800

PA. ROUTE 371
Between Susquehanna County Line and Leg. Route 63080 in Mount Pleasant Township

Limited Reconstruction	1.2 miles	$	16,500

PA. ROUTE 670
Between Pa. Route 371 and Pa. Route 370 in Preston Township

Limited Reconstruction	.7 mile	$	5,500

PA. ROUTE 570
Between Pa. Route 370 in Preston Township and Pa. Route 90 in Buck Township

New Construction	3.4 miles	$	196,000

WESTMORELAND COUNTY

PA. ROUTE 56
Between Cambria County Line and Pa. Route 711 in Seward

New Lane Construction	3.1 miles	$	725,000

LEG. ROUTE 23009
Between Indiana County Line and Pa. Route 711 in New Florence

Limited Reconstruction	.4 mile	$	11,000

LEG. ROUTE 64065
Between Pa. Route 271 in Ligonier Township and Pa. Route 711 in Saint Clair Township

New Construction	2.8 miles	$	87,000

LEG. ROUTE 64237
Between two sections of Pa. Route 259 in Fairfield Township

Limited Reconstruction	1.4 miles	$	46,000

PA. ROUTE 381
Between Pa. Route 31 in Donegal Township and Pa. Route 438 in Ligonier Township

Limited Reconstruction	7.5 miles	$	51,600

PA. ROUTE 438
Between Pa. Route 711 in Ligonier Township and U.S. Route 30

Limited Reconstruction	6.5 miles	$	160,000

LEG. ROUTE 64132 and COUNTY ROAD
Between Pa. Route 31 in Mount Pleasant Township and Pa. Route 982

Limited Reconstruction	1.2 miles	$	21,000
Limited Reconstruction	3.4 miles		22,000

PA. ROUTE 180
Between Pa. Route 981 in Union Township and U.S. Route 30 at Greensburg City Line

Limited Reconstruction	1.6 miles	$	47,000

PA. ROUTE 982
Between Fayette County Line and U.S. Route 22 in Derry Township

Limited Reconstruction	3.4 miles	$	93,000
Limited Reconstruction	5.8 miles		207,000
New Lane Construction	.9 mile		78,000
Limited Reconstruction	1.9 miles		176,000
New Construction	.3 mile		72,000

Limited Reconstruction	3.1 mile	60,000
Limited Reconstruction	1.2 miles	24,000

PA. ROUTE 981
Between Pa. Route 51 in Rostraver Township and U.S. Route 119 in East Huntingdon Township

Limited Reconstruction	1.7 miles	$ 51,100
Limited Reconstruction	8.8 miles	493,000

PA. ROUTE 981
Between Pa. Route 119 in East Huntingdon Township and Pa. Route 31 in Mount Pleasant

Limited Reconstruction	.1 mile	$ 4,400
Limited Reconstruction	.2 mile	5,500

PA. ROUTE 981
Between Pa. Route 891 in Mount Pleasant and Pa. Route 180 in Union Township

Limited Reconstruction	3.8 miles	$ 230,000

PA. ROUTE 981
Between Pa. Route 180 in Union Township and Pa. Route 80 in Loyalhanna Township

Limited Reconstruction	4.7 miles	$ 217,000
New Construction	1.6 miles	371,000
New Construction	.6 mile	116,000
Limited Reconstruction	1.2 miles	22,000
Limited Reconstruction	7.7 miles	224,000

PA. ROUTE 680
Between Pa. Route 982 in Derry Township and Derry Borough Line

Limited Reconstruction	.6 mile	$ 12,000

LEG. ROUTE 64152
Between U.S. Route 30 east of Greensburg and Pa. Route 981 in Latrobe

Limited Reconstruction	6.3 miles	$ 164,000

MAIN STREET CONNECTION
In Latrobe, connecting north and south bound traffic lanes of Pa. Route 981

New Construction	.1 mile	$ 12,700

PA. ROUTE 819
Between western entrance at Fayette County Line and U.S. Route 119 in Scottdale

Limited Reconstruction	1.0 mile	$ 37,000

PA. ROUTE 819
Between eastern entrance at Fayette County Line and U.S. Route 119 in South Greensburg

New Construction	1.0 mile	$ 267,000
New Lane Construction	1.2 miles	130,000
Limited Reconstruction	.5 mile	9,900
Limited Reconstruction	9.0 miles	322,000

PA. ROUTE 819
Between U.S. Route 30 in Greensburg and Armstrong County Line west of Avonmore

Limited Reconstruction	7.0 miles	$ 139,000

LEG. ROUTE 64132
Between Pa. Route 982 and Pa. Route 981 in Norvelt-Calumet

Limited Reconstruction	2.4 miles	$ 66,000

LEG. ROUTE 64145 and COUNTY ROAD
Between Pa. Route 981 in Norvelt-Calumet and Greensburg on Mount Pleasant Street

Limited Reconstruction	8.9 miles	$ 509,000

PA. ROUTE 71
Between U.S. Route 30 in Greensburg, at the intersection of West Newton and West Pittsburgh Streets, and Pa. Route 31 west of West Newton

Limited Reconstruction	6.6 miles	$ 319,200

LEG. ROUTE 64110
Between U.S. Route 119 north of Hunker and Pa. Route 71 in Arona

New Construction	4.3 miles	$ 205,000

LEG. ROUTES 64116 and 64117
Between Pa. Route 31 in South Huntingdon Township and Pa. Route 71 in Madison

New Construction	5.2 miles	$ 219,000

PA. ROUTE 71
Between Pa. Route 88 (and also Pa. Route 711) in North Belle Vernon and Pa. Route 31 in West Side

New Construction	4.4 miles	$ 815,000
Limited Reconstruction	2.7 miles	155,000

LEG. ROUTES 64143 and 64118
Between Washington County Line and Pa. Route 71

Limited Reconstruction	.4 mile	$ 25,000
New Construction	1.4 miles	290,000
Limited Reconstruction	1.3 miles	66,000

LEG. ROUTES 64258, 64104 and 64102
Between Pa. Route 31 (and also Pa. Route 71) and Leg. Route 64163 in Hermine

Limited Reconstruction	5.6 miles	$ 169,000

LEG. ROUTES 64163 and 64162, COUNTY ROAD, and LEG. ROUTE 64092
Between Pa. Route 71 in Sewickley Township and U.S. Route 30 in North Huntingdon Township

Limited Reconstruction	5.5 miles	$ 196,000
Limited Reconstruction	1.5 miles	77,000

LEG. ROUTE 118 SPUR
Between Pa. Route 71 north of Arona and U.S. Route 30 in Adamsburg

Limited Reconstruction	2.2 miles	$ 82,000

PA. ROUTE 180
Between Pa. Route 66 in Greensburg, at the intersection of North Main and Clopper Streets, and Pa. Route 992 (and also Pa. Route 993)

Limited Reconstruction	.2 mile	$ 11,200
New Construction	3.0 miles	934,100

Limited Reconstruction	4.6 miles		413,200

PA. ROUTE 180

Between Pa. Route 992 (and also Pa. Route 993) and Allegheny County Line

Limited Reconstruction	3.4 miles	$	208,000

PA. ROUTE 993

Between Pa. Route 992 in Manor and Pa. Route 180 in Trafford

Limited Reconstruction	1.7 miles	$	226,000
New Construction	1.8 miles		356,300

LEG. ROUTE SAA-4010

Between Pa. Route 180 in Grapeville and Pa. Route 66

Limited Reconstruction	2.0 miles	$	102,000

LEG. ROUTES 64089 and 64141

Between Pa. Route 180 in Penn Township and Pa. Route 80 in Franklin Township

Limited Reconstruction	4.9 miles	$	191,800

PA. ROUTE 80

Between Allegheny County Line and Pa. Route 380

Limited Reconstruction	.2 mile	$	11,000

PA. ROUTE 380

Between Pa. Route 80 in Franklin Township and Pa. Route 819 in Bell Township

Limited Reconstruction	11.4 miles	$	485,000

PA. ROUTE 780

Between Pa. Route 28 in New Kensington, at the intersection of Seventh Street and Constitution Boulevard, and Pa. Route 380 in Washington Township

New Construction	.9 mile	$	222,100
Limited Reconstruction	3.4 miles		30,000

LEG. ROUTE 188 RELOCATED and PA. ROUTE 56 RELOCATED

Between Pa. Route 780 at New Kensington City Line and Pa. Route 356 in Allegheny Township

New Construction	6.5 miles	$	1,357,000

PA. ROUTE 56

Between New Kensington By-Pass and Pa. Route 56 relocated

New Lane Construction	5.0 miles	$	1,198,800

PA. ROUTE 56

Between Pa. Route 466 in Allegheny Township and Pa. Route 66 in Vandergrift

Limited Reconstruction	1.7 miles	$	125,000

WYOMING COUNTY

PA. ROUTE 29

Between Luzerne County Line and U.S. Route 309 in Monroe Township

Limited Reconstruction	2.2 miles	$	9,900

PA. ROUTE 292

Between U.S. Route 309 in Eaton Township and Pa. Route 92 in Exeter Township

New Construction	6.7 miles	$	407,100

PA. ROUTE 92

Between Luzerne County Line and U.S. Route 6 at Osterhaut

Limited Reconstruction	2.8 miles	$	59,500
New Lane Construction	1.7 miles		238,400
Limited Reconstruction	2.9 miles		125,400

U.S. ROUTE 6

Between Lackawanna County Line and Pa. Route 92 at Osterhaut

New Lane Construction	1.7 miles	$	203,500

LEG. ROUTES 65016 and 65014

Between Lackawanna County Line and U.S. Route 6 northwest of Lake Winola

Limited Reconstruction	1.1 miles	$	37,400

U.S. ROUTE 6 and PA. ROUTE 92

Between junction of U.S. Route 6 and Pa. Route 92 at Osterhaut and separation of these two routes at Tunkhannock Borough Line

New Lane Construction	2.2 miles	$	194,700
Limited Reconstruction	1.1 miles		36,500
New Lane Construction	.9 mile		39,400

PA. ROUTE 287

Between Pa. Route 87 at Lovelton and Pa. Route 187 in North Branch Township

Limited Reconstruction	2.4 miles	$	77,000

PA. ROUTE 92

Between Susquehanna County Line and U.S. Route 11 in Nicholson

Limited Reconstruction	3.7 miles	$	94,600

YORK COUNTY

PA. ROUTE 74

Between Maryland State Line south of Delta and Pa. Route Route 24 in Red Lion

Limited Reconstruction	21.0 miles	$	1,190,700
New Construction	1.2 miles		142,000

LEG. ROUTE 66065 and PA. ROUTE 124

Between Pa. Route 851 in Peach Bottom Township and Pa. Route 74 at Airville

Limited Reconstruction	1.8 miles	$	102,600

LEG. ROUTE 66067

Between Maryland State Line and Pa. Route 851 east of Fawn Grove

Limited Reconstruction	1.0 mile	$	48,800

PA. ROUTE 851

Between Leg. Route 66067 east of Fawn Grove and Leg. Route A-1786 west of Fawn Grove

Limited Reconstruction	5.1 miles	$	234,900

LEG. ROUTES A-1998, A-2450, and A-1786

Between Maryland State Line at Hopewell Township and Pa. Route 851 at New Park

Limited Reconstruction	2.7 miles	$ 122,500

PA. ROUTE 24

Between Maryland State Line at Hopewell Township and Pa. Route 124 in York city at the intersection of East College Avenue and South Queen Street

Limited Reconstruction	2.8 miles	$ 104,000
Limited Reconstruction	7.8 miles	271,600
New Lane Construction	5.2 miles	431,000
Limited Reconstruction	1.2 miles	56,000

LEG. ROUTE 66012 and PA. ROUTE 124

Between Pa. Route 74 in Chanceford Township and Pa. Route 624 at Craley

Limited Reconstruction	.2 mile	$ 5,800

PA. ROUTE 624

Between Pa. Route 124 at Craley and U.S. Route 30 in Wrightsville

Limited Reconstruction	6.1 miles	$ 77,600

LEG. ROUTES 66101 and 66020

Between Pa. Route 624 in Red Lion and U.S. Route 30 in Yorkshire

Limited Reconstruction	6.4 miles	$ 341,200

LEG. ROUTES A-5150, 66004, and 66017

Between Pa. Route 124 south of Yorkana and U.S. Route 30 in Hallam

Limited Reconstruction	1.8 miles	$ 80,900
New Construction	.2 mile	45,000

LEG. ROUTES A-6519, 66015, and 66004

Between Pa. Route 24 in Hopewell Township and U.S. Route 111 north of Shrewsbury

Limited Reconstruction	5.0 miles	$ 229,900

LEG. ROUTE 66088 and PA. ROUTE 124

Between Pa. Route 624 at Susquehanna River and U.S. Route 30 in York city at the intersection of East Market and South Queen Streets

Limited Reconstruction	9.8 miles	$ 259,900
Limited Reconstruction	.8 mile	31,500

LEG. ROUTES 66020, 66157, and 66041

Between U.S. Route 30 at Yorkshire and U.S. Route 30 west of West York

New Construction	1.5 miles	$ 380,000
New Construction	3.5 miles	715,000

LEG. ROUTE 66019

Between U.S. Route 30 west of Hallam and Leg. Route 66021 in Springetsbury Township

New Construction	.1 mile	$ 9,900
Limited Reconstruction	7.1 miles	407,200

LEG. ROUTE 66105

Between U.S. Route 111 in Shrewsbury and Pa. Route 616 in Railroad

Limited Reconstruction	1.4 miles	$ 80,000

PA. ROUTE 516

Between Pa. Route 116 south of Spring Grove and Pa. Route 616 in New Freedom

Limited Reconstruction	3.8 miles	$ 103,600
Limited Reconstruction	7.2 miles	371,200

PA. ROUTE 216

Between Pa. Route 116 in Hanover and Pa. Route 616 in Glen Rock

Limited Reconstruction	7.0 miles	$ 300,000
Limited Reconstruction	5.0 miles	155,800

PA. ROUTE 116

Between Adams County Line at Hanover and Pa. Route 194 in Hanover

Limited Reconstruction	.7 mile	$ 20,000

LEG. ROUTE 66145

Between Pa. Route 24 in York Township and Pa. Route 124 in Villa Green

Limited Reconstruction	.4 mile	$ 17,000

LEG. ROUTE 66050

Between Pa. Route 616 in New Salem and U.S. Route 30 in West York

Limited Reconstruction	4.2 miles	$ 181,900

PA. ROUTE 234

Between Adams County Line and U.S. Route 30 west of West York

Limited Reconstruction	7.7 miles	$ 318,100

PA. ROUTE 74

Between U.S. Route 30 in York city, at the intersection of West Market Street and Carlisle Avenue, and Pa. Route 294 in Wellsville

Limited Reconstruction	.8 mile	$ 25,100
New Construction	5.5 miles	629,800
Limited Reconstruction	1.5 miles	75,000

LEG. ROUTES 66035, A-6518, and A-1999

Between Pa. Route 194 in Washington Township and Pa. Route 74 southeast of Dover

Limited Reconstruction	4.4 miles	$ 141,200

LEG. ROUTE 66002

Between Leg. Route A-6518 and U.S. Route 11 relocated west of Manchester

Limited Reconstruction	1.5 miles	$ 74,000
New Construction	.2 mile	17,600
Limited Reconstruction	5.4 miles	261,000
New Construction	.5 mile	45,400

LEG. ROUTES 66043 and 66102

Between U.S. Route 30 in York city, at the intersection of Penn and West Market Streets, and Leg. Route 66002 in Dover Township

Limited Reconstruction	1.5 miles	$ 93,600

Limited Reconstruction	4.3 miles	245,400

LEG. ROUTES 66021, 66019, 66020, A-1993, and 66040

Between Leg. Route 66197 north of York city and Pa. Route 24 in Mount Wolf

Limited Reconstruction	5.9 miles	$ 350,700

OLD U.S. ROUTE 111

Between U.S. Route 111 at York City Line and Pa. Route 24 in North York

Limited Reconstruction	1.1 miles	$ 47,300

PA. ROUTE 24

Between U.S. Route 111 in North York and Dauphin County Line at New Market

New Lane Construction	6.0 miles	$ 402,400
Limited Reconstruction	2.3 miles	224,000
New Construction	4.8 miles	462,000
Limited Reconstruction	4.1 miles	150,600
New Construction	7.7 miles	747,200
Limited Reconstruction	.6 mile	19,700

PA. ROUTE 920

Between Pa. Route 24 northwest of York Haven and U.S. Route 111 relocated

Limited Reconstruction	5.5 miles	$ 249,800
New Construction	.2 mile	22,900

PA. ROUTE 74

Between Pa. Route 194 south of Dillsburg and Dauphin County Line

New Construction	2.4 miles	$ 191,700

LEG. ROUTE 66006

Between Pa. Route 74 at Rossville and U.S. Route 15 in Dillsburg

Limited Reconstruction	7.6 miles	$ 359,100

PA. ROUTE 616

Between Pa. Route 516 in New Freedom and Pa. Route 216 in Glen Rock

New Construction	2.0 miles	$ 250,600
Limited Reconstruction	.7 mile	34,100

PA. ROUTE 616

Between Seven Valleys and U.S. Route 30 in Manchester Township

Limited Reconstruction	5.8 miles	$ 250,400

INVENTORY OF HIGHWAYS
NEW CONSTRUCTION STANDARDS

Appendix III

Appendix III

NEW CONSTRUCTION STANDARDS

These design standards are those used by the Commission's engineers for the improvement of road sections by "new construction." They are identical with standards of the Pennsylvania Department of Highways except that the Commission recommends the use of wider rights-of-way than those specified by the Department.

These standards are taken from the Department's "standards sheet," which also includes standards for structures and various footnotes which are not set forth here.

COMMONWEALTH OF PENNSYLVANIA
HIGHWAY PLANNING COMMISSION
INVENTORY OF HIGHWAYS - NEW CONSTRUCTION STANDARDS

		Class of Highway					
		Class 1		*Class 2*		*Class 3*	
		10,000 to 20,000		*5,000 to 10,000*		*1,500 to 5,000*	
Annual Daily Traffic		Truck traffic 25% or more of total or Total traffic of 13,000 or more	Truck traffic less than 25% of total and Total traffic less than 13,000	Truck traffic 25% or more of total or Total traffic of 7,000 or more	Truck traffic less than 25% of total and Total traffic less than 7,000	Truck traffic 25% or more of total or Total traffic of 3,500 or more	Truck traffic less than 25% of total and Total traffic less than 3,500
Width of Pavement for Moving Traffic	Paved traffic lanes between shoulders or between paved parking lanes	2-12 ft. lanes each side of low divisor	2-11 ft. lanes on each side of low divisor	3-12 ft. lanes	3-11 ft. lanes	2-12 ft. lanes	2-11 ft. lanes
	Paved traffic lanes between raised curbs	1-13 ft. lane adjacent to each raised curb and 1-12 ft. lane on each side of low divisor	1-12 ft. lane adjacent to each raised curb and 1-11 ft. lane on each side of low divisor	1-12 ft. center lane and 1-13 ft. traffic lane adjacent to each raised curb	1-11 ft. center lane and 1-12 ft. traffic lane adjacent to each raised curb	2-13 ft. lanes	2-12 ft. lanes
Minimum width of shoulders without raised curbs		8 ft. in cut sect. 10 ft. in fill sect.	8 ft. in cut sect. 10 ft. in fill sect.	8 ft. in cut sect. 10 ft. in fill sect.	8 ft. in cut sect. 10 ft. in fill sect.	8 ft. in cut sect. 10 ft. in fill sect.	8 ft. in cut sect. 10 ft. in fill sect.
Minimum width of shoulders with raised curbs (Measured from curb face)[a]		3 ft. in cut sect. 4 ft. in fill sect.	3 ft. in cut sect. 4 ft. in fill sect.	3 ft. in cut sect. 4 ft. in fill sect.	3 ft. in cut sect. 4 ft. in fill sect.	3 ft. in cut sect. 4 ft. in fill sect.	3 ft. in cut sect. 4 ft. in fill sect.
Width of paved parking lanes		Normal 8 ft. Minimum 7 ft.	Normal 8 ft. Minimum 7 ft.	Normal 8 ft. Minimum 7 ft.	Normal 8 ft. Minimum 7 ft.	Normal 8 ft. Minimum 7 ft.	Normal 8 ft. Minimum 7 ft.
Minimum width of paved low divisor		4 ft.[b]	4 ft.[b]				
Maximum grades under normal conditions		5%	5%	5%	5%	7%	7%

INVENTORY OF HIGHWAYS - NEW CONSTRUCTION STANDARDS

(Continued)

		Class of Highway			
		Class 4	*Class 5*	*Class 6*	*Class 7*
	Annual Daily Traffic	*800 to 1500*	*400 to 800*	*200 to 400*	*0 to 200*
Width of Pavement for Moving Traffic	Paved traffic lanes between shoulders or between paved parking lanes	20 ft.	18 ft.	16 ft.	14 ft.
	Paved traffic lanes between raised curbs	2-11 ft. lanes	2-11 ft. lanes		
Minimum width of shoulders without raised curbs		6 ft. in cut sect. 8 ft. in fill sect.	6 ft. in cut sect. 8 ft. in fill sect.	5 ft. in cut and fill	5 ft. in cut and fill[c]
Minimum width of shoulders with raised curbs (Measured from curb face)[a]		3 ft. in cut sect. 4 ft. in fill sect.	3 ft. in cut sect. 4 ft. in fill sect.		
Width of paved parking lanes		Normal 8 ft. Minimum 7 ft.	Normal 8 ft. Minimum 7 ft.		
Minimum width of paved low divisor					
Maximum grades under normal conditions		7%	7%	9%	9%

INVENTORY OF HIGHWAYS - NEW CONSTRUCTION STANDARDS
(Continued)

			Class of Highway					
			Class 1		*Class 2*		*Class 3*	
			10,000 to 20,000		*5,000 to 10,000*		*1,500 to 5,000*	
Minimum Sight Distance (Horizontal and Vertical)		Passing	475 ft.	475 ft.	1300 ft.	1300 ft.	2100 ft.	2100 ft.
		Non-passing	475 ft.	475 ft.	475 ft.	475 ft.	475 ft.	475 ft.
Type and Depth of Pavement	Rigid	Reinforced concrete pavement	9" or 10" uniform		9” or 10” uniform		8" or 9" uniform	
		Plain concrete base	9" or 10" type A		9" or 10" type A		8" or 9" type A	
	Flexible	Bituminous surface	2¼" to 3"		2¼" to 3"		2¼" to 2½"	
		Base	10" or 12" uniform		10" or 12" uniform		10" or 12" uniform	
		Plant mixed surface	2¼" to 2½"		2¼" to 2½"		2¼" to 2½"	
		Penetration surface	3"		3"		3"	
Right-of-way			Normal 200 ft. Minimum 150 ft.		Normal 200 ft. Minimum 150 ft.		Normal 120 ft. Minimum 80 ft.	

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[a] Additional width shall be provided where pedestrian traffic requires.

[b] In special cases, width of divisor may be reduced to 2.5 feet or omitted entirely. Additional width divisor may be used under certain conditions.

INVENTORY OF HIGHWAYS - NEW CONSTRUCTION STANDARDS

(Continued)

			Class of Highway			
			Class 4	*Class 5*	*Class 6*	*Class 7*
Minimum Sight Distance (Horizontal and Vertical)		Passing	1400 ft.	1400 ft.	900 ft.	900 ft.
		Non-passing	350 ft.	350 ft.	275 ft.	275 ft.
Type and Depth of Pavement	Rigid	Reinforced concrete pavement				
		Plain concrete base				
		Bituminous surface				
	Flexible	Base	8"-9" or 10" uniform	8"-9" or 10" uniform	8"	8"
		Plant mixed surface	2¼"	2¼"	2"	2"
		Penetration surface	2" or 3"	2"	2"	2" or AT-1
Right-of-way			Normal 80 ft. Minimum 60 ft.	Normal 80 ft. Minimum 60 ft.	Normal 80 ft. Minimum 60 ft.	Normal 80 ft. Minimum 60 ft.

[c] In mountainous territory where traffic is less than 100 vehicles per day, shoulders may be reduced to 3 feet. Where traffic is less than 100 per day, grades may exceed nine percent and sight distance adjusted as required.

INVENTORY OF HIGHWAYS
TOLERABLE STANDARDS

Appendix IV

Appendix IV

TOLERABLE STANDARDS

In setting up tolerable standards of condition of an existing road, a different situation is encountered than when establishing standards for the design of a future road. In the latter case (See Appendix III) arbitrary values, based on general past experience with other roads, are set in the expectation that a road built in compliance with them will be satisfactory. In dealing with standards of condition, there is additionally available the experience that past use of the actual, existing road has developed. This substantially modifies the content of the tolerable standard sheet.

For tolerable standards, traffic was broken into the same divisions as were used for the new construction standards. Required pavement and shoulder widths were categorically stated, since these are rather definitely established and are susceptible of quick and easy field measurement. Non-passing sight distance - the minimum distance in which a car can be stopped after an obstruction in the road ahead has come into view - is also specifically given, and is based on assumptions as to the speed at which cars will be traveling.

No attempt was made to incorporate into the table an arbitrary minimum passing sight distance. This is a complex quantity. Vertical and horizontal curvatures of the road establish the distance that the driver can see ahead at any point on the road; but the desirable distance is also affected by the amount of traffic on a road and its prevailing speed.

The practical tests of the adequacy of sight distance on an existing road section are its freedom from undue congestion and from points of concentrated accident occurrence. Similarly, the acceptability of a grade is determined jointly by the steepness and the length of the grade, and is affected by the amount of traffic using it. Presence of an intolerably steep grade is soon revealed by recurring traffic congestion.

The inventory engineers were, therefore, instructed to consult accident records and to investigate local sources of information for locations where traffic congestion and hazard are known to exist. In the light of these data, decision was to be made for each locality as to the deficiency responsible for the observed unsatisfactory conditions, and as to the tolerable or intolerable nature of the sight distance and grade in each case.

For an existing road, the best possible criterion of the acceptability of the type and depth of pavement is the actual condition of the pavement. If it has been standing up satisfactorily under traffic, it may be presumed that this will continue. Hence the observed condition of pavement was made the criterion of pavement type and depth. The condition of pavement surface and cross-section is also best determined by actually experiencing the riding qualities of the road, rather than by less direct means and the standards sheet was set up accordingly.

Similarly, it was directed that the adequacy or inadequacy of drainage be established by examining the condition of the pavement, since lack of proper drainage quickly manifests itself through the development of easily recognizable pavement defects.

As part of the preparation for the inventory, the field engineers were supplies with the tolerable standards sheet, and with illustrative written discussion of it, preparatory to two days of conference in which satisfactory and unsatisfactory road characteristics were thoroughly reviewed.

The field engineers, each one possessed of long years of experience in highway work, were told that they were to avoid a slavish dependence on numerical quantities of condition, and were, at all points, to exercise their best judgment as to the adequacy or inadequacy of each road section to perform its anticipated function.

COMMONWEALTH OF PENNSYLVANIA
HIGHWAY PLANNING COMMISSION
INVENTORY OF HIGHWAYS - TOLERABLE STANDARDS

		Class of Highways						
		Class 1		*Class 2*		*Class 3*		
		(a)	*(b)*	*(a)*	*(b)*	*(a)*	*(b)*	*(c)*
		10,000 to 20,000		*5,000 to 10,000*		*1,500 to 5,000*		
Average Daily Traffic		Truck traffic 25% or more of total or Total traffic of 13,000 or more	Truck traffic less than 25% of total and Total traffic less than 13,000	Truck traffic 25% or more of total or Total traffic of 7,000 or more	Truck traffic less than 25% of total and Total traffic less than 7,000	Truck traffic 25% or more of total traffic of 3,000 or more	Truck traffic more than 25% of total and total traffic less than 3,000 or Truck traffic less than 25% of total exceeding 3,000	Truck traffic less than 25% of total when the total is less than 3,000
Width of Pavement for Moving Traffic	Paved traffic lanes between shoulders or between paved parking lanes	2-10 ft. lanes on each side of low divisor	4-10 ft. lanes	3-10 ft. lanes	3-10 ft. lanes	2-11 ft. lanes	2-10 ft. lanes	2-9 ft. lanes
	Paved traffic lanes between raised curbs	2 Outer 11 ft. lanes and 2 Inner 10 ft. lanes	2 Outer 11 ft. lanes and 2 Inner 10 ft. lanes	3-10 ft. lanes	3-10 ft. lanes	2-11 ft. lanes	2-11 ft. lanes	2-10 ft. lanes
Minimum width of shoulders without raised curbs		5 ft. in cut sect. 5 ft. in fill sect.	5 ft. in cut sect. 5 ft. in fill sect.	5 ft. in cut sect. 5 ft. in fill sect.	5 ft. in cut sect. 5 ft. in fill sect.	5 ft. in cut sect. 5 ft. in fill sect.	5 ft. in cut sect. 5 ft. in fill sect.	5 ft. in cut sect. 5 ft. in fill sect.
Minimum width of shoulders with raised curbs (Measured from curb face)		3 ft.	3 ft.	3 ft.	3 ft.	3 ft.	3 ft.	3 ft.
Minimum sight distance non-passing (Horizontal and vertical)		300 ft.	300 ft.	275 ft.	275 ft.	275 ft.	275 ft.	275 ft.
Type and depth of pavement		Any pavement which is satisfactorily supporting present traffic and will apparently support prospective traffic, will be acceptable.						
Pavement surface condition and cross section		Shall be considered acceptable (a) if not broken or disintegrated to a degree that requires resurfacing that is in the nature of construction rather than maintenance; and (b) if curves are banked suitably for a reasonable speed and the crown is not so high as to necessitate unusual caution under usual weather conditions; and (c) if sufficiently smooth to provide reasonably comfortable riding at normal travel speeds.						
Drainage		Shall be considered acceptable if the roadway is not frequently blocked by floods and is not subject to frost-boils, pumping or break-ups that show a prevailingly wet sub-grade.						

General Note: These standards are not to be taken as absolute, but will serve as a guide when deciding on what improvements to make and how they shall be classified.

INVENTORY OF HIGHWAYS - TOLERABLE STANDARDS

(Continued)

		Class of Highways			
		Class 4	*Class 5*	*Class 6*	*Class 7*
Average Daily Traffic		*800 to 1500*	*400 to 800*	*200 to 400*	*0 to 200*
Width of Pavement of Moving	Paved traffic lanes between shoulders or between paved parking lanes	2-9 ft. lanes	2-8 ft. lanes	2-7 ft. lanes	2-7 ft. lanes
	Paved traffic lanes between raised curbs	2-9 ft. lanes	2-9 ft. lanes		
Minimum width of shoulders without raised curbs		3 ft.	3 ft.	3 ft.	3 ft.
Minimum width of shoulders with raised curbs (Measured from curb face)					
Minimum sight distance non-passing (Horizontal and vertical)		200 ft.	150 ft.		
Type and depth of pavement		Any pavement which is satisfactorily supporting present traffic and will apparently support prospective traffic, will be acceptable.			
Pavement surface condition and cross section		Shall be considered acceptable (a) if not broken or disintegrated to a degree that requires resurfacing that is in the nature of construction rather than maintenance; and (b) if curves are banked suitably for a reasonable speed and the crown is not so high as to necessitate unusual caution under usual weather conditions; and (c) if sufficiently smooth to provide reasonably comfortable riding at normal travel speeds.			
Drainage		Shall be considered acceptable if the roadway is not frequently blocked by floods and is not subject to frost-boils, pumping or break-ups that show a prevailingly wet sub-grade.			

General Note: These standards are not to be taken as absolute, but will serve as a guide when deciding on what improvements to make and how they shall be classified.

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